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U. S. Printing Office Makes Important Changes

Fiscal Year for Purchasing Paper Changed from March 1 to July 1 of Each Year—First Bids Call for Supply for Three Months of Paper and Envelopes, viz. from April 1 to July 1—Public Printer Authorized to Purchase Paper in Open Market for Month of March—Committee Estimates 12,780,000 Pounds of Paper and 17,437,000 Envelopes

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 10, 1934—Some very important changes were made this year in connection with the annual supply of paper for the Government Printing Office. They were suggested by the Committee on Paper Specifications to the Joint Congressional Committee on Printing and accepted by the latter on Monday of this week.

The most important includes the changing of the fiscal year for purchasing paper from March 1 to July 1 of each year. In addition this year the first bids call for a supply for only three months for both envelopes and paper, namely from April 1 to July 1. For the month of March the Public Printer is authorized to purchase paper in the open market.

For the three months period the committee estimated that 12,780,000 pounds of paper will be needed and 17,437,000 envelopes.

Report of Specifications Committee

The report of the Specifications Committee on the paper schedule is given below as well as the various quantities of both paper and envelopes for which the bids will be received on February 26 and awards made one week later.

The Committee on Paper Specifications respectfully submits its Twenty-fifth Report and the accompanying recommended schedule for paper for the public printing and binding and blank paper for the use of the Government departments and establishments in the District of Columbia, for the term of three months, beginning April 1, 1934, and ending June 30, 1934.

Since Congress will hereafter convene on January 3 of each year, and as the period between this date and March 1 is not sufficient to allow time for advertising, issuance of specifications and standard samples, opening of bids, making awards, and entering into formal contracts, as required by law, it is recommended that the next contract be entered into for a term of three months, beginning April 1 next, and that subsequent contract terms shall begin on July 1 of each year. The estimates submitted in the accompanying schedule are, therefore, the quantities required for the three-month term beginning April 1, 1934, and ending June 30, 1934. Authority should be given the Public Printer to purchase, in the open market, such paper as may be needed during the interim between March 1 and March 31, 1934.

By beginning the contract term July 1, it will then coincide with the fiscal year thereafter, so that purchasing and accounting will be on the same basis. This change in the contract term has been recommended by the Public Printer and approved by the General Accounting Office.

The recommended changes for the three-month term are not many and some are only to clarify and make more definite and exact the phraseology heretofore used.

Under the heading of "Instructions" the following changes have been made: Paragraph No. 38, "Ruling, Writing, and Erasing Qualities," has been rewritten in order to make the requirements clearer and more specific.

Paragraph No. 61, "Details of Testing Methods", has been amplified in the interest of clarification.

Paragraph No. 76, "Time of Shipment", has been modified so as to permit the Public Printer to meet any emergency that may arise due to delay in the delivery of paper. The revised paragraph reads as follows:

"No. 76. TIME OF SHIPMENT.—Unless otherwise specified, satisfactory shipment must be made within 30 days, exclusive of Sundays and legal holidays, after receipt of an order. Whenever an emergency exists, requiring the delivery of paper in less than 30 days after receipt of an order, the Public Printer may so specify. If the contractor therefor does not agree immediately to the specified conditions, the Public Printer may purchase in the open market the necessary paper to meet such emergency. Such purchases shall be in addition to and notwithstanding any contract for similar paper."

Former Paragraph No. 90, reading: "The Joint Committee on Printing reserves the right to revoke the contract for any paper made by workmen the wages of whom are reduced during the term of the contract", is a provision inserted by the Joint Committee on Printing in the 1932 contract which now may be omitted for the reason that it is no longer necessary because the requirement is embodied in the National Industrial Recovery Act.

New Paragraph No. 90, "United States Products", relative to the purchase of United States products instead of foreign products, is an extract from sec. 2, title 3 of Public Act No. 428, approved March 3, 1933.

Paragraph No. 91, "Contract for Supplies", is new matter and is made necessary by the provisions of Executive Order No. 6246, dated August 10, 1933, for the administration of the National Industrial Recovery Act.

(Continued on page 48)

Chicago Paper Industry Endorses "New Deal"

Preponderance of Better Feeling Experienced, Based on Fairer Profit Range and Possibility of Eliminating Small and Unprofitable Orders—After Price Revisions Under Code Provisions, More Profitable Business Should Result, Because of Stabilization

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., January 8, 1934—There is still a great deal of confusion as the basic characteristic of the Chicago paper market. But slowly and surely order is coming out of chaos and there are some paper jobbers who have released price lists already. Despite the recognized inability of manufacturers, representatives and jobbers to be absolutely accurate on their price predictions—due to code revisions—business itself is going along at a satisfactory pace. A considerable amount of buying for replenishing low stocks featured the week between Christmas and New Year and this is carrying over into the first week in 1934.

The coarse paper market is reported improved as to demand and this betterment includes kraft, kraft specialties, tissues and other coarse paper lines. Improvement in the twine market is noted and one jobber stated recently that "it looked as though twine was again going to be a profitable item to handle." Fine papers experienced a fairly good week, with an increase in the size of the orders placed, an outstanding characteristic. Books and covers are fairly well out of the maze of price readjustment problems, and demand is slightly stronger. An undertone of improvement is noted in the ground wood markets where, though orders are just beginning to actually increase, the tone is decidedly better. The improvement in the entire market is reported to be having its effect on news print, as well. The board market is reported satisfactory. Waste papers are also in better demand.

A survey of the Chicago paper market indicates that the big majority of jobbers and mill representatives are in accord with the "New Deal" as it affects the paper industry. No grumbling of any consequence can be overheard in a tour of loop offices except that grumbling arising from long hours of struggle over price revisions. Even here the protests are tinged with good humor. Occasionally a paper merchant can be heard to say "well, this or that line is once more going to be profitable for us," And another says "at last we can point to some margin of profit in this item."

The preponderance of better feeling seems to be based not only on a much more fair profit range but on the possibility of eliminating small and unprofitable orders from the paper industry. "Now," says a prominent mill representative "we can tell a customer we will be willing to fill a very small order but that we hate to do it because we are so severely penalizing him. We can, on this basis, urge him to either buy a much larger quantity at once or refrain from placing his order until he has an accumulation which will permit him to place such an order on a large tonnage basis. Already this argument has worked surprisingly well and buyers are rapidly finding out that they can handle—or make plans to handle—a large order as well or much better than a small one. Of course this means cutting away a lot of unprofitable work for us."

Chicago paper representatives feel that the splendid work—and results achieved—in the majority of the lines and grades of paper will also have the effect of showing certain recalcitrant groups the advisability of swinging into line immediately. And, after price revisions are made under code provisions, the Chicago market looks for better business because of normal business improvement and more profitable business because of stabilization at living points and elimination of waste procedures—such as hand-to-mouth buying—which have long drained the industry of profits.

Association Activities

There seems to be a good deal of romance in the supposedly prosaic souls of Chicago's paper representatives. Particularly does this seem to be true with the salesmen identified with the Middle West Division of the Salesmen's Association of the Paper Industry. These men are looking forward renewing their acquaintanceship with the Waldorf-Astoria Hotel in New York City after an absence of a number of years due to the building of the new hotel. Special rates offered by a far seeing management are a further inducement. The S. A. P. I. plans its annual luncheon on February 20, the program to be announced later. It is also reported that the salesmen will elect a brand new slate of officers, inasmuch as the present incumbents, Harold Knott, president of the association, and Creighton Whiting, vice-president of the local group, have indicated their unwillingness to proceed in their present offices after a long and meritorious period of service.

Members of the Chicago Fine Paper Merchants Association on December 30 mailed an announcement to all customers as follows: "Advances in prices on practically all grades of fine paper are expected early in January. We give you this information so that you will not obligate yourself on the present basis of prices. New price lists will be issued as soon as possible."

Effective January 1, the Traffic Department of the National Container Association, which had until that time been conducted at 608 South Dearborn street, Chicago, will be located at 205 West Wacker Drive. The association is an organization of corrugated and solid fiber box manufacturers.

The National Paperboard Association held a successful meeting at the Blackstone Hotel, Chicago, on January 3. Attendance was good in view of the season of the year and ascribed to the unusually important matters before the association, including the code provisions under which manufacturers of the Association are working at the present time.

The Chicago Paper Association, in a splendid position as far as accomplishments and membership support is concerned, holds its first meeting of the new year on Tuesday evening, January 9, at the Blackstone Hotel. M. A. McNulty, newly elected president of the association, will preside. Matters concerning the processing tax as it affects all merchandise in competition with cotton, and plans for the 1934 year from the standpoint of the Commodity Committees, are likely to be the important topics of discussion.

Paper Company Offers Land for Park

The Paper Products Manufacturing Company, Swarthmore, Pa., has offered a tract of land free to the Delaware County Park Commission for park purposes, extending along the Crum Creek, from Baltimore Pike, to Beatty Road. It is expected that the offer will be accepted.

Toronto Paper Market Only Moderately Active

Seasonably Quiet Period Prevailing Due Mainly to Annual Stock Taking—Distinct Feeling of Optimism for Forthcoming Year Expressed in Ontario Paper Industry—Outlook for Both Fine and Coarse Paper Divisions Distinctly Encouraging

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., January 8, 1934—With many firms still engaged in stocktaking and with travellers off the road for the balance of the month this is a quiet period in wholesale paper circles in Ontario. Most of the paper merchants are looking back over a fairly satisfactory year and there are signs that 1934 will be a still better business year. Both the fine paper and coarse paper outlook are distinctly encouraging and in general paper lines there is a distinct feeling of optimism for the present year. As far as can be learned thus early following the holiday period there has been a virtual cleanout in special gift and holiday lines, such as calendars, greeting cards and fancy stationery in papeteries, etc. Certainly many of the supply houses who were conservative in their volume expectations for 1933 experienced an unexpected demand on their resources and were stripped of supplies long before Christmas Day.

According to a statement issued by the Canadian Pulp and Paper Association, demand for book, writing and fine papers showed little change as compared with the previous year. These papers find their principal market in Canada and the generally disturbed condition of business affected the sale and production of these grades. There was some increase in overseas shipments of fine papers but this was not sufficient to offset the decreased domestic demand. For wrapping papers, paper boards, boxes and cartons there has been an increased demand since the Spring, states the report, which has reflected the general business conditions in the Dominion, and is evidence of a greater movement of merchandise and commodities. "On the whole it may be said that there has been some progress made during the year and a continuance of this improvement during the present year would be of tremendous benefit to the industry and to Canada as a whole."

Paper Mills Use Hydro Power

Three large paper mills in the St. Catharines district are now electrically operated. The new electrically operated steam-generating units at the plants of the Provincial Paper Company at Thorold, and the Interlake Tissue Mills at Merritton, are both in operation now, having started up last week. Thousands of tons of United States coal are being used to manufacture the steam necessary to operate the plants and new space-saving equipment has taken the place of the murky stokers which formerly functioned in both places. The two plants joined the Ontario Paper Company at Thorold to make three important manufacturing divisions now using electrical boilers. Work on the new and altered buildings, installation of the boilers and stringing of the new power lines has been going on for several weeks.

Notes and Jottings of The Trade

Hired through the Port Arthur office of the Employment Service of Canada, fifty men left Kapuskasing on January 4 to be employed in cutting pulpwood for the Spruce Falls Pulp and Paper Company. The order for men was placed on the bulletin board and was filled within an hour.

The electors of Port Arthur, on New Year's Day, voted affirmatively on the by-law granting a fixed assessment of $650,000 on the Port Arthur properties of Provincial Paper, Ltd. The old assessment was for $500,000 and was for a period of ten years. The increased amount runs similarly.

Provincial Paper, Ltd., is operating two camps this season in the vicinity of Burkett, Ont. In these camps the company is employing 250 men and it is the intention to product 35,000 cords of wood. In addition to the operation of these two camps the company has made arrangements for purchasing from settlers and others 20,000 cords of wood for delivery by truck and rail.

L. F. Winchell, general manager of Hinde & Dauch Paper Company, Toronto, who is a prominent member of the Gyro Club of Toronto, entertained the club at the company's new recreation rooms and afterwards conducted the visitors through the plant.

Thomas Soole, one of the founders of the Toronto Club of Printing House Craftsmen, and well known in Toronto paper circles, was elected honorary president of the organization at its annual meeting.

During the summer construction of the only complete unit for the manufacture of silicate of soda in Canada has been going on in New Toronto. The early winter has seen this construction completed and the plant of the National Silicates, Ltd., is ready to start operations. National Silicates, Ltd., is a subsidiary of the Philadelphia Quartz Company, of Philadelphia and is associated with G. F. Sterne & Sons, Ltd., of Brantford, Ont. It is planned that tall grades of silicate will be manufactured at the new plant.

Code Hearing Set for Paper Makers Felts

The National Recovery Administration today announced that a public hearing on the proposed code of fair competition for the Paper Makers Felt Industry will be held at 10 a. m., January 17, in Room 109 of the Raleigh Hotel, Washington, D. C. A. D. Whiteside, Division Administrator, will preside.

The proposed code, sponsored by the Paper Makers Felt Association, claiming to represent 100 per cent of the volume and membership of the industry, fixes the maximum work-week at 40 hours or 10 hours in any 24 hour period. It is stipulated that these hours shall not be applicable to engineers, firemen, electricians, employees engaged in repair shops, shipping, watching and outside crews, office, sales and supervisory staffs.

A minimum wage of 35 cents an hour would be established.

American Cyanamid Acquires Maryland

The American Cyanamid and Chemical Corporation on December first acquired the Maryland Chemical Company, of Baltimore, Maryland, which, under the direction of Samuel M. Leidy, as vice-president and general manager, will be operated as a subsidiary of the American Cyanamid and Chemical Corporation. The Maryland Chemical Company specializes in the sale of mineral acids, alkalies, alums, phosphates of soda, ammonia, silicate of soda, Glauber's salt, and other chemicals, in the Baltimore territory, including Washington, D. C.

Boston Paper Trade Anticipates Good Year

Demand for Various Standard Grades of Paper Fairly Active for Season—While Wrapping Paper Moves Rather Slowly at Present, Outlook for Future Continues Bright—Box Board Market Slowly Improving—Paper Stock Prices Advance

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 8, 1934.—Business continued comparatively quiet with paper wholesalers during the week, although reported in some quarters as fair. The trade generally is looking forward to a good year, although there are some temporary holdups among merchants and printers, due to readjustment of prices. A leading manufacturer, with offices in Boston, reports a fair amount of action, but no great rush. Some distributors are working on skeleton forms of price-lists, that will cover the lines affected, to be used in conjunction with their regular price-books. As usual in the early part of the year, wrapping paper is rather slow, but there is plenty of optimism. Mills will manufacture a grade of kraft to contain no coloring matter and to average a Mullen test of approximately 85 per cent at a base price of .03⅞. There will be a higher grade to contain coloring matter and average 90 per cent and better in the Mullen test at a base price of .04⅛. The box board market was quiet, although slowly improving. There is more business in boards than a year ago at this time. Prices remained at the same levels.

The highlight of the paper stock market was the advance of old newspapers to $10 a ton, f. o. b. Boston. The demand for this commodity was greater than previously, with the supply becoming low. East Walpole was shut down during the week, but Haverhill operated. Aside from the advance in old newspapers, values are practically unchanged, although regarded as largely nominal. A house had an offer on book stock, which would make the price 85 cents to the consumer. A leading dealer feels that gunny is worth 1 cent a pound, but the producers think it is worth more. Across the water the price is 1.35 @ 1.50, due to the differences in the Exchange. Buyers do not say that it is too high, but simply that they are not interested.

Polished twine is a cent a pound higher, but it is felt that there will be a satisfactory volume of orders in this commodity for the next six months. One mill making polished twine looks for a good business during the next year, with advancing prices of raw cotton.

News of The Trade

The office of the New England Paper Merchants Association has sent out a call for the January meeting, to be held Thursday evening, the eleventh, at the Boston Chamber of Commerce, for a general discussion of the Paper Distributors' Code. Invitations have been issued to the entire New England distributing trade, together with a copy of the Code of Fair Competition, calling attention to the particular articles that demand immediate action. The association is 29 years old this month.

The Brooks Manufacturing Company, of which John E. Brooks is owner, has removed from 5 Winthrop Square to 27 Kingston street, occupying the second floor and will later have the top floor also. A 400 per cent increase in floor space allows the stocking of a more complete line of bonds, ledgers, writings, mimeos, envelopes, Index Bristol, pads, etc., as well the company's standard Brookmoor Bond. Mr. Brooks, who has issued samples of Brookmoor typewriter paper, expects to handle chip board, and is on the alert for new lines. He has been in business about a year and a half.

The Shawmut Paper Company, of which Henry Deitchman is proprietor, has opened offices at 77 Broad street, and is representing the Allied Paper Mills, Kalamazoo, Mich. Mr. Deitchman was until recently salesman for John Carter & Co., Inc., for about six years, and previously with Stone & Andrew, Inc., about seven years. The company is distributor of Nareko, Triton and Hampshire Research Bonds, all of which are water-marked, and the last mentioned a 25 per cent rag content paper. The concern is also handling Nareko, Hampshire Research and Shawmut Brand envelopes, Shawmut Bond, Poster, Railway Manila, Index, Bristol, besides railroad and tag stock and tough check, cloth stock, label paper and gummed paper.

Friends of Herbert C. Ham, who is widely and very favorably known in the trade are pleased to learn that he has become a member of the sales force of the Worthy Paper Company Association, West Springfield, Mass. That concern has issued an announcement, as of January 1. Mr. Ham joined Arthur E. Ham in the paper business in 1921, after attending the Massachusetts Institute of Technology, and was associated with the Arthur E. Ham & Sons organization twelve years, specializing on high grade papers. His thorough knowledge of such papers and their uses will enable him to render intelligent and efficient service to the trade on Worthy papers. Mr. Ham's headquarters will be at the office of the company in West Springfield.

In an educational forum of six meetings, starting January 11 and ending March 15, on the general subject of "Controlling Distribution Costs," conducted by the Boston Chapter, National Association of Cost Accountants, at the Boston Chamber of Commerce, A. C. Farrell, of the Dennison Manufacturing Company, Framingham, Mass., will give a lecture on "The Control of Solicitation or Order-Getting Costs," January 25, and F. J. Naumann, of the same company, one on "Merchandise Handling, Shipping and Service Costs," February 20.

A. B. Carpenter, treasurer of the Amoskeag Paper Mills Company, Manchester, N. H., called on the trade last week.

Leon Miller, Inc., Brookline, Mass., has been incorporated to carry on a printing and stationery business. The concern is capitalized at $2,000. There are forty shares, $50 each. Helen Schwartz is president; Leon Miller, 1718 Commonwealth Avenue, Boston, treasurer, and Fannie Miller is the third incorporator.

Charles J. Brown, New England representative of J. P. Lewis Company, Beaver Falls, N. Y., recently slipped on an icy sidewalk, so that he broke a leg and several ankle bones. He will probably be confined to his house at 90 Warren street, Needham, Mass., for the next two months. His telephone number is Needham 0412.

W. E. Smiddy, Jr., representative of the Missisquoi Pulp and Paper Company, Sheldon Springs, Vt., who is located in New York, has taken over the Boston territory for his company.

Activities of Fox River Valley Paper Mills

Consolidated Water Power & Paper Co., of Wisconsin Rapids, Pays Dividend of 50 Cents Per Share On Common Stock—President George W. Mead Declares Reasonable Return of Normal Business Will be Quickly Reflected in Company's Earnings

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 8, 1934—A dividend of one-half of one per cent, or 50 cents a share on the $100 common stock, was declared last week by the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis. Checks were issued to the 238 stockholders with a letter from George W. Mead, president, in which he said:

"After allowance for all costs, including depreciation, profits will be small. But while the actual earnings might not justify the payment of a dividend, your directors feel that the company can afford to pay a small dividend at this time."

Mr. Mead's letter further states: "The outlook for the coming year seems somewhat better than it did a year ago. It is pleasing to know that the position of the Consolidated is such that a reasonable return of normal business will be quickly reflected in its earnings."

Extensive Pulpwood Purchases

With reserve stocks depleted and increased demands anticipated, mills are negotiating extensive purchases of pulpwood with jobbers operating in Wisconsin and Northern Michigan. Approximately 65,000,000 feet will be purchased by the mills around Wausau, Wis.

Marathon Paper Mills Company, Rothschild, Wis., has placed orders for 15,000,000 feet with four jobbers in the Gogebic and Marenisco sections of upper Michigan, and also is purchasing 21,000,000 feet on contract from others. Of the latter total, 9,000,000 feet already has been delivered. The mill also bought 3,500,000 feet from farmers, on which deliveries already have been made. The total purchases will aggregate 39,500,000 feet, considerably more than a year ago.

Mosinee Buying from Farmers

Mosinee Paper Mills Company, Mosinee, Wis., is making all of its purchases from farmers and will put in 40,000 cords, equivalent to 16,000,000 feet. The company has been out of the market for about three years, but is paying out to farmers approximately $45,000 a month and hopes to keep the market open for their benefit.

Wausau Paper Mills Company, Brokaw, Wis., is buying 10,000,000 feet this season from six contractors, and has about one-quarter of the amount already at the mill. Logs are being trucked from the woods to Tomahawk, Wis., and shipped by rail to the mill.

Canadian Pulpwood for Wisconsin

New facilities for the sale and distribution of Canadian pulpwood to Wisconsin mills will be established at Ashland, Wis., this winter by the Thunder Lake Lumber Company, of Rhinelander, Wis., according to announcement of J. D. Mylrea, president. Construction will be started soon on a pulp hoist and storage yard at a cost of $25,000. Boom privileges in the Lake Superior Harbor adjacent to the Chicago and Northwestern Railway Company's ore docks are being sought. The wood will be shipped across Lake Superior from Canada and reloaded on cars for delivery by rail to various mills. The arrangement will be similar to that maintained at Ashland by the Consolidated Water Power and Paper Company, which brings rafts across the lake each season and has loading booms at the docks. A steady source of pulpwood supply will thus be assured.

Paper Chemistry Institute Appointments

Dr. George C. Monroe has been appointed as physicist at the Institute of Paper Chemistry, Appleton, Wis., according to announcement of Dr. Henry M. Wriston, president of Lawrence College and director of the Institute. He attended the University of Colorado, earned his A. B. degree at the University of California, and obtained his doctor's degree at the California Institute of Technology. He is considered an outstanding authority on physics.

Wayne Stevenson, Richmond, Va., who earned his master's degree at the Institute, has been appointed assistant to G. H. McGregor, in the physical testing division. Other appointments include Charles E. Johnson, Cloquet, Minn., a graduate of the University of Minnesota, as assistant to Mr. McGregor in the physical testing department, John Strange, Neenah, Wis., in charge of paper codes, and Miss Martha Jentz, Appleton, Wis., as assistant to the code administrator. Mr. Strange formerly was administrative assistant at the Institute.

News of the Industry

Mill owners of the Fox River Valley, Wisconsin, and the United States government are both to be held liable if the level of Lake Winnebago exceeds the 15-inch mark above the level of the control dam at Menasha, Wisconsin, according to a resolution adopted by the Association for the Relief of High Water. This restriction has been opposed by mill owners because of the necessity of holding a sufficient head of water in Lake Winnebago to take care of periods of drought, especially in midsummer, and have held out for the 21¼ inch maximum level. The situation probably will be relieved by construction of reservoirs on the upper Wolf river, the chief source of flooding of riparian lands during periods of high water. The war department has asked Congress for an appropriation of $6,000 so as to enable engineers to prepare maps giving information as to where reservoirs might be built as a means of flood control.

A special verdict in circuit court of Portage county, Wis., directed the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., to pay damages of $1,100 to John Kaczmarek, a riparian land owner. This was the value fixed on land taken by backwater from the Consolidated's dam on the Wisconsin river at Stevens Point, Wis. The jury deliberated for nearly five hours.

A patent has been granted to William H. Cannard, of the Cannard Mechanical Engineering Works, Green Bay, Wis., on a method of and apparatus for making reinforced sheets of paper. An attachment has been designed for paper machines which operates in making the reinforced sheets in a single process, instead of requiring a separate method as formerly. The invention will be placed on the market in the near future

Mohawk Paper Mill Changes

COHOES, N. Y., January 8, 1934.—The Mohawk Paper Mills, Inc., announce that at a recent meeting of the board of directors, William J. McChesney was elected vice-president in charge of sales and J. J. O'Connor vice-president in charge of production.

Philadelphia Paper Market Conditions Improve

Strength of Seasonal Buying Exhibited During Yuletide Holidays Helped Materially—Distributors of Paper Experiencing Normal Quietude, Due to Inventory Period Lull—Quotations on Various Grades of Paper Well Maintained

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., January 8, 1934—Sentiment in the trade continues to show improvement, having been helped materially by the strength of the seasonal buying power exhibited during the Christmas holidays. A normal quietude prevails in the wholesale trade due to inventory period, while advance inquiries indicate light inventories of retailers with a tendency at present to restock on a conservative but practical basis. The chief customers of the paper houses—printers—are working double shift, showing that there is no paucity of orders. There is reported a 99 per cent. stabilization of the credit situation, and book binders so impressed with the plan formulated by the Paper Trade Association, have adopted it, and at this writing they are highly pleased with the improvement shown in collections.

The Paper Trade Association of Philadelphia is busy getting its house in order to operate under the Code, which was recently signed by President Roosevelt, and a copy of which was presented to each member. A regional committee is to be appointed whose duty it will be to administer the Code. One of the outstanding features of the Code is the fact that no one is to be permitted to sell merchandise at less than replacement costs, and this will be most helpful to the careful trader in that he will be able to make an honest profit and it will give him the advantage over someone who might be overloaded with over-priced stock who is forced to dump it in order to get rid of same. The annual meeting of the Association will be held on Wednesday at which the membership will elect a Board of Governors and they will, in turn, elect officers for the ensuing year.

In the coarse paper trade there has been a slowing down of business, attributable to difficulties entering into inventory taking at this time. Prices, however, are holding firm with the probability of advance in tissue paper and northern kraft. At the meeting of the Coarse Paper Division of the Philadelphia Paper Trade Association, held at the Benjamin Franklin Hotel on Thursday last, there was unanimity of opinion with regard to mills having a better understanding of prices, etc.

A special meeting of the Paper and Cordage Association was held at the office of the Paper Manufacturers Company during the week, and plans were made for constructive procedure in 1934. The association feels very enthusiastic over the splendid growth of the membership during 1933 and is looking forward with a great deal of confidence towards reaching greater heights for 1934. The entertainment committee, under the leadership of Leslie C. Bartlett, is laying plans to secure the best obtainable speakers at its monthly meetings, and have mapped out a program for talks on sales, income tax, athletics, monetary and current topics. Being mindful of the problem of the salesman today, arrangements have been made to obtain a speaker who is well qualified to discuss this subject, and he will cover the sales problems of today in a forcible manner.

The Paper and Bag Division of the Philadelphia Paper Trade Association, will hold its regular meeting tonight in the Broadwood Hotel. They will have a round table discussion of the Code in its entirety.

With greenbacks a live issue during the present controversy over inflation, old Uncle Pat O'Keefe of Glen Mills, Delaware County, recalls the Civil War days when that little village on Chester Creek, twenty miles from Philadelphia, was busy making bank-note paper for Abraham Lincoln's currency. It was in this village that the Government Bank-Note Paper Works, owned and operated by the Willcox family, famous for 150 years for banknote paper, was located. Glen Mills became known as the "million-dollar town," for it is estimated that paper with a face value of $3,000,000,000 was made here during the Civil War period. In 1888 the mill passed from the hands of the Willcox family and later was bought by Joseph Dohan. A few years ago it was closed, after having been devoted to making wrapping paper.

There has recently been installed in the mill of the Downingtown Paper Company, a Moore & White Sheet Paster with new modern high speed improvement. A new high speed, Moore & White all ball-bearing equipped drive unit of the latest design has been installed in the Manayunk Mill of the Container Corporation of America on their large first press-drive board machine, and this has been operating to their entire satisfaction.

Goulds Pumps, Inc., has furnished Dill & Collins Company with three figure 3105—4 inch size special open type warped vane impeller—centrifugal paper stock pumps to handle 6 per cent stock, equipped with splash proof motors.

Gottesman and Co. Move

Announcement is made that Gottesman and Company, Inc., now located in the Central National Bank Building, will move their offices about the middle of January to 22 East 40th street, corner Madison avenue, New York, where they will occupy the entire 35th and part of both the 34th and 36th floors. D. Samuel Gottesman is President of Gottesman and Company, Inc. and is also President of the Central National Corporation, who will likewise move their quarters to the same address.

Gottesman and Company, Inc., established in 1886, are among the largest distributors of woodpulp and papermakers' chemicals.

A Distinction for Cameron Machine Co.

As mentioned in a previous issue, Messrs. Edward Lloyd, Ltd., Sittingbourne, Kent, England, have placed an order for the manufacture of a new paper machine, which will be the world's largest, with a wire width of 320 inches. It will run at 1400 f.p.m. This machine will be equipped with a new Type 20 High Speed Cameron Winder, capable of keeping well ahead of the paper machine at any paper making speed. This winder is now under construction at the Canadian plant of the Cameron Machine Company.

Hearing on News Print Dumping

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 9, 1934—The Customs Bureau has called an open hearing for January 16 at which time all parties interested in question of news print dumping from Canada will be given an opportunity to be heard.

Vacuum Control

By A. E. Broughton, Neenah, Wis.

Correction and perfection of the vacuum systems at the flat boxes, couch, felt boxes and presses on an ordinary Fourdrinier paper machine is much needed. Approximately thirty per cent of the total power required to drive both the constant and variable speed line shafts is used in the vacuum pumps. Between twenty and fifty per cent of this vacuum power can be saved, and still maintain the same and perhaps better conditions of pull at those points requiring it. I will endeavor to point out why and how this can be accomplished.

As a general rule, about one fourth of the water traveling under the slice is carried away through the flat boxes. The major portion of this is handled by the first one or two wet boxes. The type of cover must be of such design to allow the water to flow freely. A cover with holes naturally requires a higher velocity than one with slots, and this velocity must be obtained by more pull or higher vacuum and more power consumed than necessary. The design of the flat box itself, must be such that the water passed through the cover be allowed to flow easily to and through the outlet connection. If the cross section area is such that velocity and pull are again necessary—more wasted power. The flat box should be such that just enough vacuum is required to pull the water through the wire, and once it is in the box, gravity controls it from there on.

Air Evactors Not Water Pumps

Vacuum pumps are air evactors not water pumps, and yet it is the general rule to carry both the water and air through the flat box vacuum pump. This is exceedingly wasteful in power and usually detrimental to the quality of the sheet on the wire. The pump intermittently becomes monopolized by water, decreasing its vacuum pull which in turn decreases the water flow to it. This allows the pump to catch up, and pull air for a moment, and the vacuum rises. The gauge on the flat boxes is constantly fluttering, showing that the water is leaving the box in slugs. Furthermore, this intermittency in the velocity of water removal has a tendency to cause chatter or grab, and, if the stock on the wire is subject to occasional radical variations in consistency, even wire stops.

The Usual Method of Control

The usual method of controlling the vacuum in the box, in installations of this kind, is a hand valve in the discharge pipe, throttling both air and water and the box usually runs full. The machine tender wonders why he cannot get just the right formation and where those streaks are coming from. Shutting off the screen valve a little bit sometimes helps him but why? Not quite so much water is coming to the wet boxes and they are not running quite so full. Of course, this is only one of many reasons for poor formation and streaks, but nevertheless it is an important one.

Another Method

Another method is the vacuum breaker admitting air into the pump in amounts to equal its capacity at the level or degree of vacuum required on the boxes. This requires the pump to handle a great deal more air than actually travels through the boxes. These breakers are inverted weighted safety valves and subject to inertia. The intermittency in the pump vacuum explained above, causes these breakers to chatter, and really increases the amount of intermittency in the pump. All this is portrayed in the fluctuations of the vacuum gauge on the boxes.

There are relatively few installations of the water and air being drawn into a separating chamber, the water falling by gravity into a seal tank and the air alone being carried into the pump. The degree of pull is governed by breakers as just explained. The pump in this case requires less than half the power it does when taking care of the water, too. Here the boxes must necessarily all have the same vacuum. To break one box more than another, of course breaks them all, and that probably explains the unpopularity of this scheme, for graduation of the vacuum is fundamentally necessary. Yet this method cuts twenty or thirty horse-power to ten or fifteen and when power costs fifty dollars a year per horse-power, this means something.

An Assumed Condition

Assume a condition, to begin with, where thirty horsepower was required on the flax box vacuum pump, and by making the change of separating the air and water, but ten horse-power is used. Still enormous excess quantities of air are passing through the breakers. A second change is made, whereby each box is controlled by a special valve in the air release line only. The water is allowed to drop freely into the seal tank below, but the pull of the pump on the box is automatically governed by this valve to any degree that the operators set it. Each valve has its own breaker, a function of the valve stem itself, and allowing air directly into the box only. This breaker cannot function until the valve is closed. For instance, the operator sets the valve on the first wet box to two inches on the gauge. Just enough pull from the pump is allowed through the valve to maintain that two inches of vacuum The stock on the wire becomes slower or heavier, increasing the seal and having a tendency to increase the vacuum to two and one half inches. The valve automatically closes and the breaker opens up just a trifle to permit just enough air to bleed into the box to keep that vacuum down to two inches where the operators set it. The pump is required to handle only that air that actually comes through the box, and the ten horse-power that had been used can be cut down to three or even less.

No Longer Any Fundamental Fault

There is no longer any fundamental fault in this power saving scheme of separating the water and air. The box vacuums can be graduated to any degree the operators require without affecting in the slightest the vacuum pull of the pump. All surging or intermittency is totally and completely eliminated. There will be no more wire stops due to grabbing, thereby increasing wire life. Any vacuum setting is held absolutely steady regardless of stock changes on the wire. The ability to graduate the vacuum and depend upon its holding exactly where he sets it, allows the machine tender to set up conditions tending to better formation and decrease two-sidedness.

This new valve as designed and built by the writer is now being used very successfully on several paper machines in the middle-west.

Bids and Awards for Government Paper

WASHINGTON, D. C., January, 10.—The Government Printing Office has received the following bids for 72,000 pounds of white sulphite bond paper; Perkins-Goodwin Company, at 5.55 cents per pound; Aetna Paper Company, 5.82 cents; Cauthorne Paper Company, 6.89 cents; Old Dominion Paper Company, 6 cents and 6.25 cents; Mathers-Lamm Paper Company, 5.35 cents; Whitaker Paper Company, 5.95 cents; Dobler & Mudge, 6 cents; R. P. Andrews Paper Company, 5.75 cents; Barton, Duer & Koch Paper Company, 6.5 cents; Stanford Paper Company, 5.5775 cents; Walker-Goulard-Plehn Company, 6.04 cents; and Ditton, Inc., 5.75 cents.

For 34,500 pounds of pink sulphite writing paper; Perkins-Goodwin Company, at 5.362 cents per pound; Aetna Paper Company, 6.65 cents and 6.55 cents; Cauthorne Paper Company, 6.68 cents; Old Dominion Paper Company, 7 cents; Mathers-Lamm Paper Company, 6.49 cents and 6.6 cents; Dobler & Mudge, 7.1 cents; R. P. Andrews Paper Company, 6.75 cents; Barton, Duer & Koch Paper Company, 7 cents; Stanford Paper Company, 6.159 cents; Walker-Goulard-Plehn Company, 7.09 cents; and Ditton, Inc., 7.25 cents.

For 3,000 pounds of 76 per cent rag blue ledger paper; Carew Manufacturing Company, at 22.3 cents per pound; Whiting Paper Company, 23.48 cents; Aetna Paper Company, 22.31 cents; Barton, Duer & Koch Paper Company, 23 cents less 3 per cent; and R. P. Andrews Paper Company, 20.6 cents.

WASHINGTON, D. C., January 10.—The Government Printing Office has announced the following paper awards:

The Prudential Manufacturing Company will furnish 35,400 pounds (300,000 sheets) of 26 by 42½ inches, 25 per cent rag mimeograph paper at 5.53 cents per pound, bids for which were received on December 20.

The Chart Production Company will furnish 2,020 sheets of 21 by 32 inches sensitized paper at $30 per M sheets, bids for which were received on December 18.

Perkins-Goodwin Company will furnish 40,000 pounds (625,000 sheets) of 22 by 34 inches salmon sulphite writing paper at 4.69 cents per pound, bids for which were received on December 21.

Perkins-Goodwin Company will also furnish 17,250 pounds of buff sulphite writing paper at 4.78 cents per pound and also 17,250 pounds of the same salmon, at 4.88 cents, bids for which were received on December 22.

Reese & Reese, Inc., will furnish 4,000 sheets of red four ply railroad board at $36.22 per M sheets and 5,000 pounds same white eight ply at $44.41, bids for which were received on December 20.

Barton, Duer & Koch Paper Company will furnish 20,000 pounds of green calendered tag board in 23¼-inch rolls at 7 cents per pound, bids for which were received on December 11.

The Perkins-Goodwin Company will furnish 38,500 pounds (500,000 sheets) of white writing paper at 4.18 cents per pound bids for which were received on December 12.

Perkins-Goodwin Company will also furnish 40,000 pounds (120 rolls) of white sulphite writing paper in 21-inch rolls at 3.87 cents per pound, bids for which were received on December 13.

The same company will also furnish 143,500 pounds (1,000,000 sheets) of 32 by 42 inch white sulphite bond paper at 5.15 cents per pound, bids for which were also received on December 13.

The Whitaker Paper Company will furnish 10,000 pounds of 75 per cent rag white antique laid book paper, deckle edge, at 10.17 cents per pound, bids for which were also received on December 13.

The Prudential Manufacturing Company will furnish 36,950 pounds (500,000 sheets) of 25 per cent rag, yellow and buff bond at 6.96 cents per pound, bids for which were received on December 15.

The Virginia Paper Company will furnish 7,000 sheets of Rhodidendron cover paper at $277.00 per M sheets, bids for which were received on December 18.

The Perkins-Goodwin Company will furnish 50,000 pounds of sulphite writing paper in white and green at 4.19 cents and 4.61 cents per pound, respectively, bids for which were received on December 18.

The Prudential Manufacturing Company will furnish 77,600 pounds (400,000 sheets) of 50 per cent rag white index paper at 8.93 cents per pound, bids for which were received on December 20.

Crane & Company will furnish 2,000 sheets of 15 by 21 inch Crane's artificial parchment at 5.04 cents per sheet.

Perkins-Goodwin Company will furnish 38,250 pounds (400,000 sheets) of 28 by 34 inch white sulphite writing paper at 4.08 cents per pound, bids for which were received on December 11.

The Whitaker Paper Company will furnish 108,000 pounds (1,200,000 sheets) of 8 by 10½ inch white mimeograph paper at 4.365 cents per pound, bids for which were received on December 4.

The Cauthorne Paper Company will furnish 2,000 pounds of No. 1 gummed kraft paper at 7.94 cents per pound, bids for which were received on December 6.

The Whitaker Paper Company will furnish 10,000 sheets of gray photo mount board at $42.00 per 1,000 sheets, bids for which were received on December 4.

The Prudential Manufacturing Company will furnish 117,600 pounds (1,400,000 sheets) of 25 per cent rag mimeograph paper at 4.88 cents per pound, bids for which were received on December 6.

The Stanford Paper Company will furnish 163,000 pounds of pink and white sulphite writing paper at 4.32 cents and 4.22 cents per pound respectively, bids for which were received on December 7.

The Cauthorne Paper Company will furnish 300,000 sheets of 17 by 22 inch white gummed paper at $4.53 per M sheets, bids for which were received on December 6.

The R. P. Andrews Paper Company will furnish 38,200 pounds of single ply 50 per cent rag white index paper, at 8.65 cents per pound, bids for which were received on December 4.

Barton, Duer & Koch Paper Company will furnish 63,125 pounds of 25 per cent rag bond paper at 7.23 cents per pound, bids for which were received on December 1.

The Prudential Manufacturing Company will furnish 162,750 pounds of colored sulphite writing paper at 4.42 cents per pound, bids for which were received on December 1.

The same company will also furnish 65,200 pounds (800,000 sheets) of yellow sulphite writing paper at 4.42 cents per pound, bids for which were received on December 1.

The Aetna Paper Company will furnish 39,800 pounds (470,000 sheets) of yellow mimeograph paper at 4 4 cents per pound, bids for which were received on November 29.

The Aetna Paper Company will also furnish 35,400 pounds (300,000 sheets) of white chemical wood mimeograph paper at 4.05 cents per pound, bids for which were received on November 29.

The Perkins-Goodwin Company will furnish 81,500 pounds (1,000,000 sheets) of white sulphite writing paper at 4.46 cents per pound, bids for which were received on November 29.

The Whitaker Paper Company will furnish 20,000 sheets of Japanese tissue paper at $8.33 per M sheets, bids for which were received on November 27.

The same company will also furnish 2,000 pounds of plate wiping paper for embossing at 5.4 cents per pound, bids for which were received on November 27.

The Perkins-Goodwin Company will furnish 72,000 pounds (1,000,000 sheets) of white sulphite bond paper at 5.17 cents per pound bids for which were received on November 27.

The R. P. Andrews Paper Company will furnish 42,800 pounds (208,000 sheets) of 50 per cent rag white index paper at 8.73 cents per pound, bids for which were received on November 27.

Reese & Reese, Inc., will furnish 10,000 sheets of white railroad board at $52.35 per M sheets, bids for which were received on November 22.

The Aetna Paper Company will furnish 36,600 pounds (300,000 sheets) of white sulphite writing paper at 4.33 cents per pound, bids for which were received on November 25.

Miami Valley Paper Business Better

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, January 8, 1934.—Business conditions are steadily improving in Dayton and Miami Valley towns. This valley is one of the leading paper producing sections in the United States and no industry has been maintained on a more even keel during the depression than this one, according to observers.

The fact that most of the mills have continued to operate, some almost at normal capacities, is indicative of the strength of the industry and brings vividly to mind the old slogan, "The consumption of paper is the measure of a people's culture." This probably meant, if the modern interpretation is to be placed on the ancient claim, that the public, men and women and children, are consuming more paper goods than ever before in history. Not necessarily that consumption of book and print papers record a nation's culture, although this is strictly true, but the many paper devices which have been manufactured for the use of the public have reflected in great measure the advancement made by an enlightened world.

Like the stereotyped, country sale bill advertising the event in rural sections there will be other articles offered but they are "too numerous to mention," it may be said that the mill man's offerings likewise are "too numerous," etc. It is now possible to obtain a paper substitute for nearly everything from the drinking cup, paper towel and 'kerchief, to the ice-filled champagne bucket.

It is the expressed hope in this section that the prosperity will continue to gain in volume until the use of the last-named article shall become possible, not for the stimulation that it may afford to many, but as a symbol of returning good times for years to come. Given a run of substantial business, the paper and allied manufacturers will display "common horse sense" in the use of the paper-made champagne container, or the paper wine "glass" and the paper beer stein, it is confidently believed.

Protests Processing Tax

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, January 8, 1934.—A number of Miami Valley firms have enlisted in the plan to protest against the tax imposed on processing coated paper into bags.

Discrimination against the paper bag industry, in particular, is charged in the protesting petition, which is reported to have been sent to Henry A. Wallace, Secretary of Agriculture, following urgent wires which preceded it.

The protest said the rate was greatly in excess of the tax per equivalent units on cotton.

Among those protesting are the Raymond Paper Bag Company, Middletown; the Chatfield & Woods Sack Company; and the Diem & Wing Paper Company, the two latter of Cincinnati; and some Dayton and other valley concerns. It is said here that approximately 90 per cent of the manufacturers in the United States have been represented in the movement against the paper bag tax.

W. F. Lawrence, president of the Middletown concern; and M. A. Thomas, of the company bearing his name in Middletown, said processing taxes aggregating 20 per cent of production costs, imposed by the Secretary of Agriculture, would result in a layoff of many employees.

Munising Paper Company Joins TAPPI

The Munising Paper Company of Munising, Mich., one of the leading paper manufacturers of the Middle West, has become a corporate member of the Technical Association of the Pulp and Paper Industry.

The executives of the company include C. H. Worcester, president and treasurer; S. L. Mather, vice president; E. P. Strong, secretary; N. J. Niks, superintendent; H. G. Elliott, chief engineer; W. A. Munro, manager; and H. J. Miner, sales manager.

Major equipment in the mill consists of two 136-inch fourdriniers, ten 1,800 pound beaters, two refiners, three digesters and two wet machines.

180,000 pounds per day of bleached sulphite pulp is manufactured and converted into the well known Munising bonds, writing, envelope, offset, index and bleached specialty papers.

W. A. Munro, who is well known throughout the industry, will represent the Munising Paper Company in the Technical Association.

Canadian Technical Section To Meet

The Technical Section of the Canadian Pulp and Paper Association will hold its annual meeting on January 24-25 at the Engineering Institute Building in Montreal.

A feature of the convention will be the banquet to be sponsored by the Pulp and Paper Magazine of Canada, in the Piazza of the Mount Royal Hotel, Wednesday evening, January 24.

Members of TAPPI and others directly connected with the paper industry in the United States will be welcome to attend all meetings and functions.

Boiler Explodes at Marion Mill

[FROM OUR REGULAR CORRESPONDENT]

MARION, Ind., January 5, 1934.—A boiler explosion at the plant of the Marion Paper Company here killed a fireman and wrecked two buildings, causing damage estimated at between $75,000 and $100,000. The blast occurred shortly before 11 p. m. and hurled debris more than two blocks, breaking out windows in a wide range. The plant had been down for a week while inventory was being taken. The cause of the blast was not determined.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Richvale, Cal.—The Pacific Coast Pulp and Paper Corporation is arranging for the sale of preferred and common stock to gross amount of $563,500, to be used in part for carrying out its paper and pulp mill project, now underway. The new plant will be used for the manufacture of boxboard, paper and straw pulp, using rice straw as a source of raw material. The plant is scheduled for completion later this year. D. M. Thomson is president and general manager.

New York, N. Y.—The Prospect Paper Box Company, 131 Mercer street, manufacturer of paper boxes and containers, has leased space in building at 45-61 Wooster street, and will occupy for new plant. Present establishment will be removed to the new location.

Milwaukee, Wis.—The Milwaukee Western Waste Paper Company, 834 South Water street, plans rebuilding of portion of plant, recently destroyed by fire, with loss of about $20,000, including equipment.

Dalton, Mass.—Crane & Company, Inc., have acquired complete stock ownership of Z. & W. M. Crane, Inc., and will take over the local Bay State Mill and other real estate of the latter organization. The property transferred includes holdings at other places, these being Hinsdale, Pittsfield, Windsor and Lanesboro. Z. & W. M. Crane, Inc., will be continued in the future as a sales organization.

North Bergen, N. J.—The Gibraltar Corrugated Paper Company, 1723 Bergen Turnpike, has approved plans for new addition to plant, consisting of a one-story and basement unit, 125 x 300 feet, on Bergen Turnpike. Superstructure will be placed under way at early date by Bonanno Brothers, 1827 Bergen Turnpike, who have secured general erection contract. New structure will cost over $65,000, with equipment. W. P. Katz is president.

New York, N. Y.—The Air-Kraft Corrugated Box Corporation, recently organized with capital of 200 shares of stock, no par value, plans operation of local plant for the manufacture of corrugated paper and fiber boxes and containers. Incorporators of the new company include Jacob Graifer, 202 East 93rd. street, and Solomon Greenberg, 1630 47th street, both Brooklyn, N. Y.

Monroe, Mich.—Fire, January 1, caused slight damage at Mill No. 2 of the River Raisin Paper Company. No official loss has been announced. The damage will be replaced.

Brooklyn, N. Y.—The Grand Corrugated Paper Company, Inc., 128 32nd street, has arranged for change of company name to the Grand-City Container Corporation.

Williamsport, Pa.—The Celanese Corporation of America, Inc., Amcelle, near Cumberland, Md., manufacturer of cellulose rayon products, has purchased a mill at Williamsport, and will occupy at once for a new branch plant. It is expected to make extensions and improvements, installing considerable equipment. The new plant will give employment to about 500 operatives and will be placed in service at early date. As recently reported in these columns, the company has plans nearing completion for a new addition to Mill No. 3, at main plant at Amcelle, designed to give employment to about 3500 additional persons. Large increase in present capacity will be carried out. Work on superstructure is scheduled to begin in near future. The expansion program is reported to cost over $500,000, including equipment.

Skaneateles Falls, N. Y.—The Saxer Paper Mills, Inc., has arranged for a reduction of capital from $50,000 to nominal amount of $1000. The plant of the company is now idle.

St. Paul, Minn.—The Minnesota Mining and Manufacturing Company, Forest street, manufacturer of abrasive papers, granular roofing sheets, etc., has begun an expansion program at local plant, with improvements in storage and distributing units. Miscellaneous contracts for steel, roofing, etc., are being let. As previously announced in these columns, general contract has been awarded to William Murphy & Son, New York Life Building, St. Paul. Toltz, King & Day, Inc., Pioneer Building, city, is architect.

Chicago, Ill.—The Vortex Cup Company, Western avenue, manufacturer of paper cups, etc., has concluded arrangements for purchase of property adjoining its four-story factory and six-story storage and distributing plant, providing for control of an entire block of property bounded by Western and Claremont avenues, Austin avenue and Kinzie street, totaling over 28,200 square feet. Present buildings on the site will be demolished at a later date. The property will be used for future expansion, time of work still to be determined. No immediate building is proposed at this time. About three years ago the company doubled the size of its plant.

Lake Charles, La.—The Mathieson Alkali Works, 250 Park avenue, New York, N. Y., manufacturers of liquid chlorine and other products for the paper and pulp industry, have begun work on large new plant near Lake Charles, where tract of over 100 acres of land was recently acquired. Project will consist of a group of buildings for different departments of operation, with main divisions comprising a soda ash plant to cost $2,182,000, with equipment; caustic soda works to cost $870,000, with machinery; limestone works for raw material supply, $777,000, with equipment; brine supply units, $545,000. In addition there will be other structures, as well as power plant, pumping station and general waterworks system,

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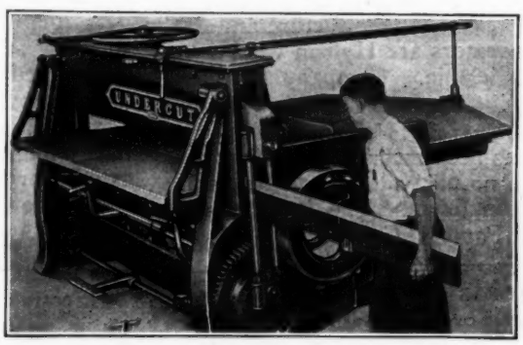
BETTER than all the man-made safety devices is the Undercut principle, pioneered by S & W. It is the one positive, never-failing check against the horror of a dropping knife.

In Undercuts, the knife works from below. The cutting edge is always up. When dropping, the knife does not follow its cutting stroke. In these trimmers *alone*, gravity acts as a constant guard against accidents.

No safety device is needed here. The cutting edge always *falls away* from the danger point.



Even during installation, the blade is always up. Dropped, the edge is on top—no danger of ugly cuts.

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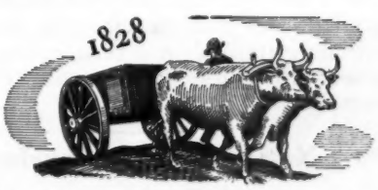

If it's UNDERCUT, *it's* S & W

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The SMITH & WINCHESTER *Manufacturing Company*

PLANT AND OFFICES AT SOUTH WINDHAM, CONNECTICUT

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these mechanical units being estimated to cost about $940,000, with equipment. The entire program will represent an investment of over $6,000,000 and is scheduled for completion by the end of the present year. The Stone & Webster Engineering Company, 49 Federal street, Boston, Mass., and 90 Broad street, New York, N. Y., will supervise building construction; the Trump Corporation, Engineering Department, Chimes Building, Syracuse, N. Y., is engineer. E. A. Hults, vice-president and director of operations, Saltsville, Va., will be in charge of work at Lake Charles.

New Companies

Chicago, Ill.—The Cheboygan Wood Pulp Company, 201 North Wells street, has been incorporated with capital of 50 shares of stock, no par value, to manufacture and deal in woodpulp products. The incorporators are Fred J. Williams, Edgar L. George and David K. Cochrane.

Wilmington, Del.—The Spring Cushion Egg Carton Corporation has been chartered under state laws with capital of $200,000, to manufacture paper and cardboard containers, cartons and boxes for eggs and other special service. The incorporators are L. H. Herman and Walter Lenz, Wilmington.

Philadelphia, Pa.—The Star Wall Paper Company has been incorporated under Delaware laws with capital of 500 shares of stock, no par value, to manufacture and deal in wall papers. The incorporators are Hyman Chavenson and Morris Marcus, Philadelphia. Company is represented by Irvin Glick, Wilmington, Del. attorney.

Chicago, Ill.—The Transparent Package Company, 231 South LaSalle street, has been incorporated with capital of 1000 shares of stock, no par value, to manufacture special paper boxes and containers. The incorporators are Alfred G. Johnson and Paul M. Godehn.

Chas. Davidson Jr. Joins Whiting Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 2, 1934—Charles Davidson, Jr., superintendent of the Southworth Paper Company of West Springfield for the past 10 years takes over the superintendency of one of the mills of the Whiting Paper Company in Holyoke today.

Mr. Davidson will be succeeded in the Southworth mill by Arthur L. Hobday, assistant superintendent at that mill. The Whiting Paper Company operated three mills in Holyoke, and Mr. Davidson's father operates one of them.

Mr. Davidson was given a banquet Thursday night by the employees and management and presented with appropriate gifts. He has been in the paper manufacturing business 18 years starting with the Strathmore Paper Company.

National Paper Products Awards

CARTHAGE, N. Y., January 4, 1934—Many employees of the National Paper Products Company were awarded service pins at a banquet staged here recently. Service medals representing from five to twenty-five years were awarded. A. B. Lowenstein, vice president of the Crown-Zellerbach interests, presided at the affair and also awarded the pins. During his remarks he suggested that local residents might help by making it a point to buy products manufactured by the mill. He traced the history of the service pin program and gave a brief description of the organization. He pointed out that from the very beginning the company has made it a point to recognize its employees after each five years of service. It is his opinion that we are now entering on a new era in the paper business and called attention to the recently adopted code.

Work of Forest Products Laboratory

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 9, 1934—In its efforts to make the paper industry less dependent on imports of foreign pulp and pulpwood, the U. S. Forest Products Laboratory at Madison, Wis., has contributed to the increasing use of such species as pines, hemlocks, Douglas fir and certain hardwoods for pulp production.

Between 1920 and 1930, the percentage of domestic spruce and balsam fir used in pulp production fell from 58 to 36 per cent. Last year's work at the laboratory had to do with woods such as Douglas fir and the southern pines, which, on account of their resinous character, are usually regarded as proper material only for the sulphate or kraft process, but experiments with the new soda-base and ammonia-base processes resulted in true sulphite pulps of satisfactory strength and bleaching qualities from these abundant woods.

Experiments also revealed a new and promising source of tissue papers in western hemlock pulped by the standard sulphite process, and proved that finely broken-up wood can be satisfactorily pulped. This latter discovery has a special significance in relation to possible pulping of vast quantities of sawdust waste.

The laboratory is now studying the question of the darkness and difficulty in bleaching of products yielded by ordinary sulphate pulping.

The Federal forest service, declaring that the home market for pulp and paper offers outstanding opportunities for utilizing more American land and labor, challenges the paper industry to develop more efficient, economical and satisfactory production of pulp and paper from native stands now existing.

Wm. H. Bond Joins Elk Paper Mfg. Co.

Effective first of the year, Elk Paper Manufacturing Co., Childs, Md., announced the appointment of Wm. H. Bond of Baltimore, to their sales staff. For nearly 10½ years Bill Bond was a member of Brown Company's sales staff, covering eastern Pennsylvania, Delaware, Maryland, District of Columbia, Virginia, North and South Carolina. He has a host of friends in the paper distributing trade and their personnel in the above territory as well as in other sections. He is greatly pleased to again have the pleasure of calling on his old friends and restoring the esteemed loyal cooperation that was so prevalent in his previous sales and promotion work.

The Elk Paper Manufacturing Company manufactures a high quality grade of butchers fiber, imitation parchment, and manilla wrappings. The mill is ideally located on the B & O Railroad at Childs, Md., between Baltimore and Philadelphia. The mill is in splendid shape with thoroughly practical and experienced executives in charge and equipped to furnish quality papers with service.

Bill Bond will continue to make his home in Baltimore. This is in close proximity to the mill. All business transactions will take place from the mill at Childs, Md.

Nashua Awards Bonus to Workers

NASHUA, N. H., January 5, 1934—Employees of the Nashua Gummed and Coated Paper Company were notified recently that they would be paid a 5 per cent bonus on their yearly wages for 1933. The announcement, which affects 700, stated that checks would be distributed Friday, January 5. The company in the announcement to employees said that the company had had increased business the past six months and asked continued cooperation of all employees.

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16

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ONLY the passing of years can round out a fully co-ordinated organization prepared to give prompt and efficient service . . . the kind of service you remember pleasantly.

In 1917 the Enterprise Machine Company began, in a small way, to build an organization well equipped to render an all-round service to paper mills.

Since that time, Enterprise has consistently devoted its efforts to the building of equipment that reduces costs and improves quality. It has brought out improvement after improvement.

In mills throughout the country, these contributions by Enterprise have won approval solely on sheer merit.

It has done these things at prices more than consistent with the results . . . definite, measureable results.

The organization is made up of men who have spent their lives in the paper industry. They know the manufacturing problems, and knowing those problems, have demonstrated their collective and individual ability to solve difficulties.

Today, Enterprise is a better equipped and more fully rounded out organization than ever. During these trying times, it has not let down. Rather has it forged ahead in its determination to be the kind of organization that can be looked to with complete confidence.

If you feel that these are the kind of people you would like to do business with . . . if you feel that you want a tie-up with a connection that will look upon your problems as their challenge and then meet that challenge . . . then there is every reason why you should communicate with Enterprise.

THE ENTERPRISE MACHINE COMPANY
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Builders of: Harvey-Lewellen Automatic Paper Thickness Control — Enterprise Compensating Drive— Fre-Flo White Water Deckle — Brooks Quick Opening Valves — Spread and Guide Roll Combinations— General Paper Mill Machinery.

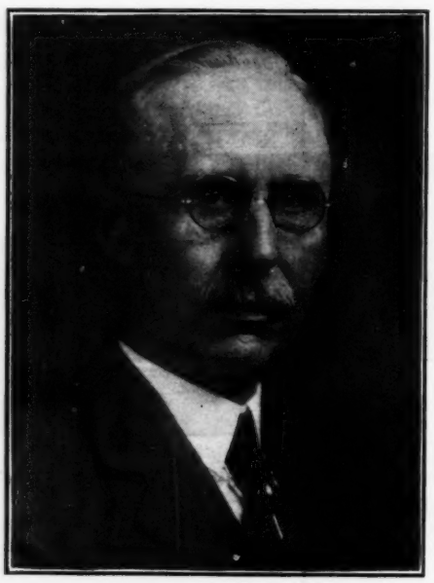
Obituary

Frank B. Hoffses

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 8, 1934—Frank B. Hoffses, one of the managers of John Carter & Co., Inc., died suddenly Thursday morning at his home, 3 Summer street, Hyde Park.

Mr. Hoffses had been at business as usual on the previous day at his office, 597 Atlantic avenue, and during the evening appeared well. Thursday morning he arose



FRANK B. HOFFSES

at his customary time and while he was shaving dropped dead.

He was born in South Waldoboro, Me., 65 years ago. He had been connected with John Carter & Co. 46 years, and was well-known in the paper and cardboard trade.

He is survived by a wife, two sisters and three brothers. The funeral services were held at his late residence Sunday.

John Carter & Co. has received a large number of letters of sympathy from the mills.

Charles Henry Wood

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 8, 1934.—The funeral of Charles Henry Wood, for 58 years identified with the paper stock business in Boston, 54 years of which he was associated with E. Butterworth & Co., Inc., held at the Mount Auburn Chapel, Cambridge, Mass., Friday afternoon, was attended by a number of the trade.

Mr. Wood died December 26 from over-exertion while going home from the office of Train Smith & Co., with which concern he had been for eighteen months. He had left the office at 2:45 o'clock for his residence, 7 Bigelow Street, Somerville, going early to avoid the traffic tieups from the raging snow-storm. While walking from the car to his house, he fell exhausted in a snow drift. He was taken to the Somerville Hospital, but died on the way there.

Mr. Wood, who was dean of the paper stock trade in this section of the country, was 72 years old. He was born in Portland, Maine, in 1861, the son of Francis and Alice (Appleby) Wood. When a boy of 14 he went to work for the old paper mill supply house of Marbles & Shaw, on Broad street. The concern was the American representative of Edwin Butterworth & Co., of Manchester, England. Starting as office boy, he was later bookkeeper and later salesman in New England territory.

Some years later he became manager of the Boston office of E. Butterworth & Co. of Massachusetts, and was for many years its president. He left there about a year and a half ago to join the Train Smith organization.

He was formerly a member of the board of aldermen of Somerville, and was prominent in Masonry. He was a member of the Boston Paper Trade Association, of which for some time he was auditor. He belonged to the Central Club of Somerville, the Belmont Spring Country Club, Belmont, Mass.; the South Shore Country Club, and the Beacon Club of Hull, Mass., where he had a summer residence in the Allerton section.

He is survived by his widow, who was Augusta W. Lindstrum, of Roslindale, Mass.; two daughters, Mrs. Norman Allard, of Newton Center, Mass., and Miss Rosamond Wood, living at home; two sisters, Mrs. Alice Gould of Cambridge and Mrs. Mary J. Hadley of Randoph, and three grand-children. Another daughter, Mrs. Amy B. Parks, died about twelve years ago.

John W. Phippen

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., January 8, 1934.—John W. Phippen, well known in paper mill circles of this section, died suddenly at his home here last week following a heart attack. He was 75 years old. For a number of years he served as mechanical superintendent for the Laureltide Paper Company at Grand Mere, Canada, and after leaving that concern returned to this city. He was also employed as superintendent of construction at the old mill of the Piercefield Paper Company prior to the time it was taken over by the International Paper Company. John J. Warren, prominent paper mill executive, was then superintendent of the Piercefield plant. During the time he held that position the deceased supervised all construction activities. Several years later he supervised the erection of a big dam for the St. Regis Paper Company at Detroit. Since 1900 he had been prominent in the civic life of this city and much of the development of various departments has been under his direction. He had gained a wide reputation as an expert mechanic with a knowledge of all kinds of construction. Many of the large paper mills in this section and Quebec were built under his direction. About 1920 he held a responsible position with Knowlton Brothers here and supervised the work then carried on by the company in renovating new properties acquired. Survivors include his wife, a son and two daughters.

George P. Walker

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., January 8, 1934.—George P. Walker, of Montreal, died suddenly on December 27 last, at the age of 77. He had been a partner with his brother in the firm of J. R. Walker & Co., paper manufacturers, Montreal, but had retired from active business. His brother J. R. Walker died about a year ago. Mr. Walker was twice married, his second wife being a daughter of the late James Shearer of Montreal, and who predeceased him some ten years ago. He is survived by three daughters, Mrs. F. Howard Wilson, Mrs. Allan Mitchell, and Miss Madeleine Walker, and one step-son, T. S. Stewart.

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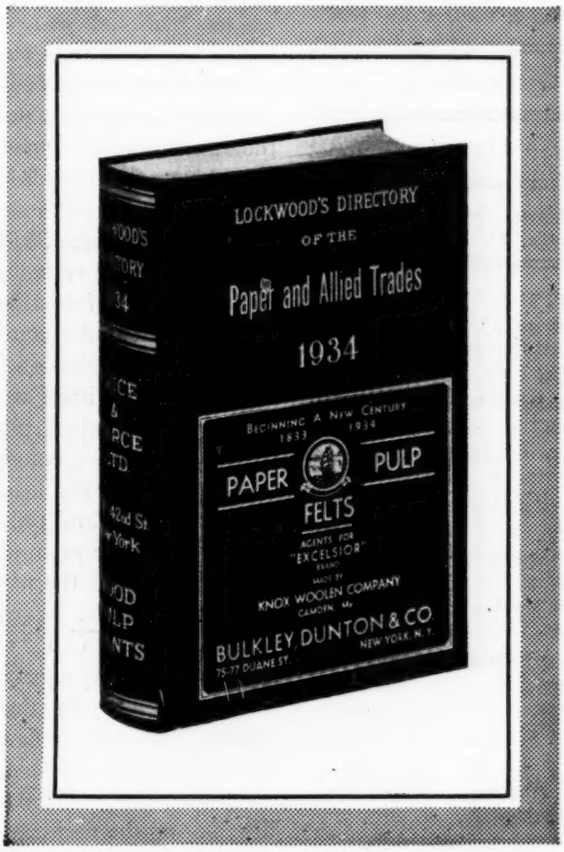

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COMING EVENTS

AMERICAN PAPER AND PULP ASSOCIATION, Fifty-Seventh Annual Convention and Meeting, Waldorf-Astoria Hotel, New York, February 19-23. Annual Meeting, Friday, February 23.

Technical Association of the Pulp and Paper Industry, Convention, Waldorf-Astoria Hotel, New York, February 19-21.

Salesmen's Association of the Paper Industry, Annual Meeting, Waldorf-Astoria Hotel, New York, Tuesday, February 20.

New York Association of Dealers in Paper Mill Supplies, Annual Banquet, Hotel Commodore, Wednesday, February 21.

NATIONAL PAPER TRADE ASSOCIATION OF THE UNITED STATES, Convention, Waldorf-Astoria Hotel, New York, February, 19-21.

Canadian Pulp and Paper Association, Annual Meeting, Montreal, week of January 22.

Technical Section, Canadian Pulp and Paper Association, Annual Meeting, Montreal, January 24-25.

ANNUAL REPORT OF FOREST SERVICE DESCRIBES ADVANCES

Advance toward achieving efficient use of the country's forest resource as a part of national planning is recorded in the annual report of the Forest Service for the fiscal year 1933, made public today by the Secretary of Agriculture.

"The satisfactory adjustment of our national economy to the great dual resource of soil and water requires finding the right balance of agriculture, forestry, range use, and water-resource use with each other," the report says. Therefore, the forest problem of the country "is not isolated but is a part of a much greater one, now fast coming to the fore and becoming recognized as a problem of planned development."

The national forests have demonstrated how much to the public advantage it is to have land uses rationally coordinated, according to the report. The principle on which the national forests are being administered is that of coordinated use aimed at yielding the largest net total of public benefits, both in economic and social welfare.

For planning the measures necessary to use efficiently the forest resource in the common interest a basis better than has ever before been available was provided by the restudy of the whole forest situation made by the Forest Service in compliance with the "Copeland Resolution" of the U. S. Senate. The report pointed out that less than 4 per cent of the nearly 9,900,000 acres of private forest land cut over annually is cut over with regard for future yields, and more than 800,000 acres are being added annually to the area that must be classed as devastated. Through tax forfeiture, millions of acres are passing into forced public ownership.

The "national plan for American forestry" proposed in the Copeland report calls for measures both to promote private forestry and to build up public forests. A Federal and State acquisition program is recommended, looking to the eventual public ownership of approximately 395,000,000 acres out of a total of 670,000,000 acres of commercial and non-commercial forest land. This acquisition program would include some 55,000,000 acres of abandoned agricultural land. The recommendations for cooperative arrangements with the forest industries—under which their lands would be put under continuous production—are already on the road to realization, it is hoped, the lumber industry having pledged itself in Article X of the lumber code to a policy of sustained production of forest resources.

The President's emergency conservation work, together with improvements being accomplished under the public works program and provision for accelerated Federal land acquisition, have permitted a start toward meeting some of the objectives of the national plan for American forestry, the Forest Service report states. Most of the work undertaken by the C. C. C. was work long planned by Federal and State forestry agencies for orderly accomplishment over the years. For the Forest Service, the first step toward getting the work under way was to select thousands of these previously planned projects, and to select suitable camp locations. There was also the task of procuring and distributing the necessary tools, machines, trucks, and other equipment, and the recruiting of suitable supervisors. During the first 6 months, nearly 600 C. C. C. camps were located on the national forests. The Forest Service was also called upon to supervise and assist State authorities in the conduct of all work being done from 660 camps established on State and private land.

The Forest Service reports the tightening of its business organization and the development of an accounting system described as marking "a decided forward step in cost control of Government expenditures." In the field of executive management, the report says, its studies produced results recognized by outside experts as going beyond the best that private business has worked out.

The net area of the national forests at the close of the fiscal year was 162,009,145 acres, an increase of 648,454 acres during the year. The 1933 fire record on the national

forests is reported as one of the best in national-forest history.

In the extension of fire protection to State and private lands, the Forest Service cooperated with 38 States under the Clarke-McNary Act during the year. Approximately 223,000,000 acres of State and private forest or potential forest lands were reported under some form of organized protection from fire. The acreage protected was 55 per cent of the total area classed as needing protection.

Some curtailment of regular forest research activities was necessitated during the year by the falling off in available funds. As part of the economics studies, field work was completed on the inventory phase of the forest survey of the Douglas fir region in the Northwest, and in the Delta hardwood and upland pine units in Mississippi. Studies relating to fire control furnished improvements in protection planning. A new method developed for estimating growth in selectively cut stands promises to prove one of the most far-reaching accomplishments in many years. Erosion and streamflow investigations yielded much on problems of water conservation, flood prevention, and soil saving. The work of the Forest Products Laboratory on numerous problems of wood utilization was greatly aided by transfer of the Laboratory to a new modern building erected on a site donated by the University of Wisconsin.

American Writing Paper Co. Sustained

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 9, 1934—The Federal Circuit Court sitting at Boston October 18 to hear the case of the Holyoke Water Power Company against the American Writing Paper Company, Inc., appealed from the Federal District Court, filed their decision last week sustaining the lower court unanimously.

This was the famous "silver bullion" case which came up when the American Writing Paper Company tendered silver bullion in payment for its water rentals from the water power company basing their action on the reading of the old lease which it claimed specified that they should be paid in that manner. For years this had been obsolete; but a difference arising between the water power company and the paper company in which the paper company alleged that the other company refused to modify in the slightest degree some matters it wanted adjusted the paper company decided also to adhere strictly to the lease provisions as they understood them and therefore tendered the silver bullion.

This was done on two different occasions and acceptance refused by the water power company. It was then decided rather than continuing the proffer that the matter should be taken to the Federal courts which was done.

It is viewed as doubtful if the water power company will be able to take the case to the United States Supreme Court.

E. I. duPont Joins TAPPI

The first dyestuffs manufacturer to become a company member of the Technical Association of the Pulp and Paper Industry is the E. I. duPont de Nemours Company of Wilmington, Del.

The products and services of this outstanding, progressive company are too well known in the paper industry to necessitate a description of them here.

The duPont organization will be represented in the Technical Association by C. F. Schaumann of the Dyestuffs Division.

Ask Protection for Newsprint

[FROM OUR REGULAR CORRESPONDENT]

SEATTLE, Wash., January 2, 1934—A potent appeal to Franklin D. Roosevelt and General Hugh Johnson to immediately place in effect those features of the National Recovery Act designed to protect American industry and American labor from the ruinous competition of foreign importations was made in a strong resolution adopted by local No. 269, International Brotherhood of Papermakers, Port Angeles, Wash., recently.

The *Port Angeles Evening News,* loyal supporter of the paper and pulp industry, commented editorially in the favor of the action. The item reads:

"Increase of foreign newsprint imports into the United States at an alarming rate while American mills are running only part time has drawn fire from the paper makers, whose belief it is that American newsprint mills should be kept in full-time operation if the full benefits of the national recovery program are felt.

"Under the provisions of the national recovery act the president has the power to either limit tax or place a complete embargo against importations which are definitely working a hardship on American factories and American workingmen more especially when those factories are operated economically, and have an abundant supply of raw material to transform into a finished product.

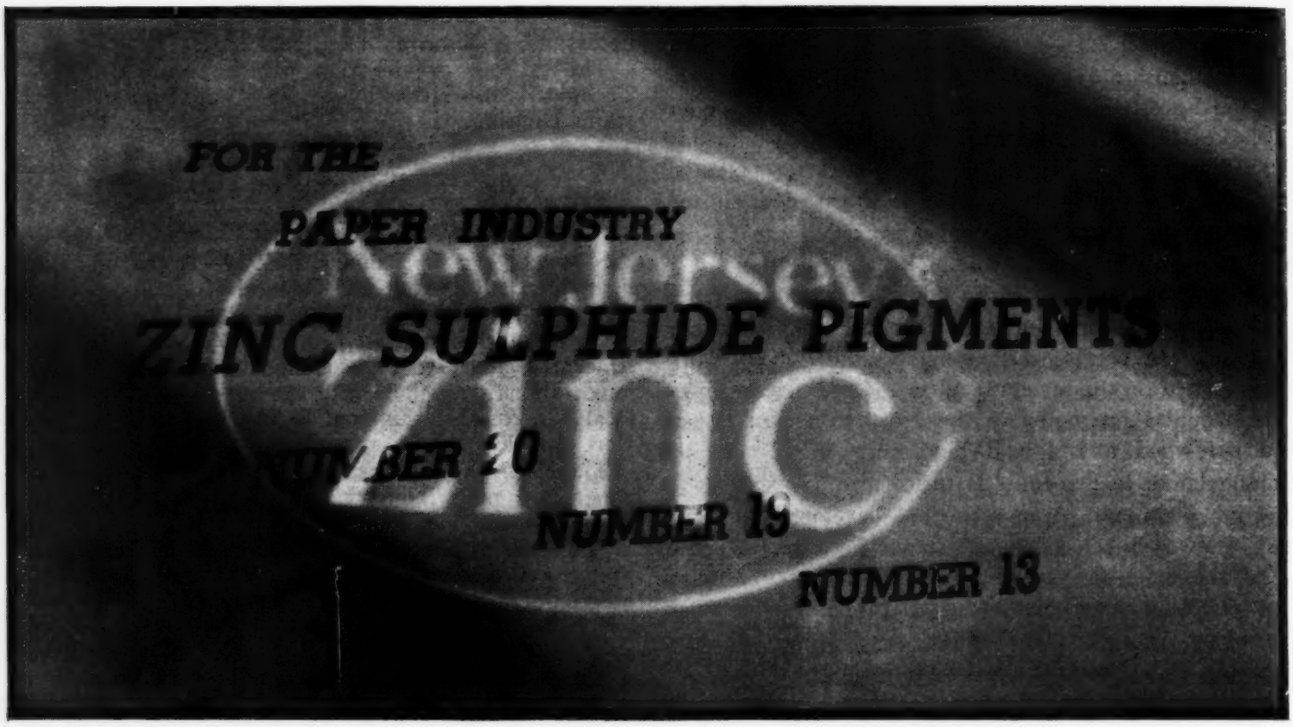
"The union paper makers have observed statistics showing the tremendous increase in newsprint production in other countries, which ship the great bulk of their newsprint into the United States—and they are asking the president to invoke the necessary regulations to keep American mills operating to capacity so that the full benefits of the national recovery act will become apparent in fact as well as theory."

The *Port Angeles Evening News* further declared "Propaganda is a fearful and wonderful thing. Just the other day some brilliant internationist at Washington set forth the information that American newsprint exports into Canada had increased 14 per cent over 1932. He was right as rain. In 1932 the United States shipped seven tons of newsprint into Canada. In 1933 thus far we have shipped eight tons of newsprint into Canada.

"A glorious increase of 14 per cent. In other words, the United States shipped into Canada enough newsprint to keep the Washington Pulp and Paper mill, (a large Puget Sound pulp mill) busy 20 minutes turning it out and a woodpecker busy for about three weeks getting out the chips.

"Now let's look at the other side of the picture. While American pulp and paper workers were in the breadlines in the United States, Canada shipped over 2,000,000 tons of newsprint into the United States, or enough to keep thousands of papermakers busy. We shipped Canada seven tons of news print, while she shipped us more than two million tons.

"No wonder the union papermakers of Port Angeles are demanding that the blue eagle help the American newsprint industry. Unless the NRA applies regulations to protect the market of American factories, the blue eagle will fly over empty buildings. There should be either a tariff or limitation on imports until all American mills are operating and all American papermakers are employed.



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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

United States Patents On Papermaking

Fourth Quarter, 1933

Compiled by Clarence J. West, Chairman, Committee on Abstracts and Bibliography, TAPPI.

NOTE.—Copies of any of the following patents may be obtained from the Patent Office, Washington, D. C., for ten cents ($0.10) each. Stamps and personal checks are not accepted.

October 3, 1933

1,928,805. Process of impregnating fiber board with a salt. Alexander Winogradow, New York, N. Y. Filed Oct. 8, 1931. 7 claims. (Cl. 91-68). Board is impregnated with an alcohol solution of an acid and then treated with ammonia. C. A. 27:5979.

1,928,835. Machine and method for producing roofing. Robert B. Levis, assignor to Bird and Son, Inc., East Walpole, Mass. Filed Jan. 3, 1928. 14 claims. (Cl. 91-67.9).

1,929,008. Corrugated ribbed paper. Sidney D. Wells, assignor to Paper Mills Laboratories, Inc., Quincy, Ill. Filed June 22, 1928. 2 claims. (Cl. 154-33).

1,929,033. End cap for paper cores. Annie L. Reagles, assignor to Elixman Paper Core Co., Inc., Corinth, N. Y. Filed Apr. 1, 1932. 2 claims. (Cl. 242-68).

1,929,034. End cap for paper cores. Annie L. Reagles, assignor to Elixman Paper Core Co., Inc., Corinth, N. Y. Filed Nov. 22, 1932. 4 claims. (Cl. 242-68).

1,929,035. End cap for paper cores. Annie L. Reagles, assignor to Elixman Paper Core Co., Inc., Corinth, N. Y. Filed Nov. 22, 1932. 1 claim. (Cl. 242-68).

1,929,036. End cap for paper cores. Annie L. Reagles, assignor to Elixman Paper Core Co., Inc., Corinth, N. Y. Filed Nov. 22, 1932. 2 claims. (Cl. 242-68).

1,929,037. End cap for paper cores. Annie L. Reagles, assignor to Elixman Paper Core Co., Inc., Corinth, N. Y. Filed Apr. 1, 1933. 3 claims. (Cl. 242-68).

1,929,090. Drying apparatus for layers of fibrous materials. Frank L. Bryant, assignor to Cellufoam Corporation, Chicago, Ill. Filed May 16, 1930. 8 claims. (Cl. 34-12).

1,929,115. Sizing composition for paper or the like. Edward J. Johnstone, Lockport, N. Y. Filed Nov. 29, 1929. 4 claims. (Cl. 134-21). Refined tallow incorporated in rosin size. C. A. 27:5978.

1,929,117. Method of finishing surfaces of materials composed in part of vegetable fibers. Charles P. Leyner and Rosa M. Leyner, Denver, Colo. Filed June 23, 1932. 6 claims. (Cl. 92-68).

1,929,137. Process and apparatus for edging cardboard articles and similar objects. Pierre Auguste Gustave Cassegrain, Rennes, France. Filed Feb. 9, 1931. 9 claims. (Cl. 93-1).

1,929,145. Manufacture of pulp from colored rags. Samuel Lenher and Harry Fletcher Lewis, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Oct. 12, 1932. 11 claims. (Cl. 92-14). Rags are treated with hot caustic, washed and treated with alkaline hydrosulphite compound. C. A. 27:5977.

1,929,160. Paper roll supporter. John Bellocchio, New York, N. Y. Filed Oct. 28, 1932. 9 claims. (Cl. 242-68).

1,929,204. Transfer means for board machines. Douglas C. Jeffrey and Henry J. Wolfe, assignors to Universal Gypsum and Lime Co., Chicago, Ill. Filed Dec. 9, 1931. 43 claims. (Cl. 198-21).

1,929,205. Paper making. Clarence Earl Libby, assignor to National Aluminate Corporation, Chicago, Ill. Filed Apr. 4, 1932. 13 claims. (Cl. 92-21). In sizing, fibers are treated in suspension with size and water-soluble alkaline aluminate and the size is precipitated with an acid-reacting soluble reagent. C. A. 27:5978.

1,929,344. Machine and method for mixing fibers. Oliver A. Benoit, Lawrence, Mass. Filed Mar. 11, 1931. 4 claims. (Cl. 19-146).

October 10, 1933

1,929,432. Method of making paper and similar products. Mone R. Isaacs, Philadelphia, Pa. Filed May 16, 1931. 12 claims. (Cl. 92-21). Cellulose fiber is beaten in the presence of a protein and a fluoride.

1,929,460. Art of making receptacles. Charles P. Wellman, West Medford, Mass. Filed Jan. 8, 1932. 7 claims. (Cl. 93-49).

1,929,577. Method of making rosin size. Judson A. De Cew, assignor to Process Engineers, Inc., New York, N. Y. Filed July 10, 1929. 3 claims. (Cl. 134-21).

1,929,601. Duplicating sheet. Carl S. Miner, assignor to Charles H. Joy, Jr., Chicago, Ill. Filed May 27, 1931. 5 claims. (Cl. 41-31.6).

1,929,632. Paper can machine. George O. Frostad and James E. Annen, assignor to The National Paper Can Company, Milwaukee, Wis. Filed Jan. 29, 1930. 3 claims. (Cl. 93-51).

1,929,653. Device for manufacturing hollow paper bodies from aqueous fibrous pulp after the couching method. Ewen Ross-Smith, assignor to Investira S. A., Laussanne, Switzerland. Filed May 21, 1932. 2 claims. (Cl. 92-59).

1,929,828. Fraud-preventing paper. John Schlitz, Leavenworth, Kans. Filed Nov. 24, 1931. 4 claims. (Cl. 283-8).

1,929,924. Paper article and method of making it. William G. Jopson, assignor to C. A. Reed Company, Williamsport, Pa. Filed July 26, 1932. 9 claims. (Cl. 41-24).

1,929,944. Molded pulp articles. Merle P. Chaplin, assignor to Fidelity Trust Company, Portland, Me. Filed Aug. 19, 1930. 14 claims. (Cl. 217-26.5).

1,929,945. Molded pulp article. Merle P. Chaplin and Wallace E. Parsons, assignors to Fidelity Trust Company, Portland, Me. Filed Sept. 29, 1930. 9 claims. (Cl. 217-26.5).

1,930,104. Paper making machine. William H. Millspaugh, Sandusky, Ohio. Filed Feb. 16, 1931. 10 claims. (Cl. 92-49). Arrangement of rolls, wire and felt.

1,930,330. Apparatus for cutting web material. Charles W. Wattleworth, assignor to Sylvania Industrial Corporation, Fredericksburg, Va. Filed Dec. 30, 1932. 8 claims. (Cl. 164-42).

1,930,336. Fourdrinier belt. Edward J. Buell, assignor to The Lindsay Wire Weaving Company, Cleveland, Ohio. Filed Nov. 28, 1931. 5 claims. (Cl. 245-10). A method of making a seam for a woven wire belt.

1,930,393. Adhesive to be employed in the manufacture of waterproof abrasive products. Jacques Lemerle, assignor to Société Anonyme, Compagnie Centrale des Emeris et Produits a Polir, Paris, France. Filed Oct. 21, 1929. 1 claim. (Cl. 87-17).

1,930,405. Paper reeling machine. Frederick William Vickery, London, England. Filed Dec. 23, 1932. 10 claims. (Cl. 242-58).

1,930,429. Process of producing wax carbon spots on sheets of paper by impression on an ordinary printing press. George A. Rutkoskie, assignor to The McBee Company, Athens, Ohio. Filed Apr. 14, 1931. 3 claims. (Cl. 91-70).

October 17, 1933

1,930,646. Method of impregnating porous materials. Philip P. Gray and Ernest E. Werle, assignors to The Fibre Conduit Company, Orangeburg, N. Y. Filed Nov. 12, 1930. 2 claims. (Cl. 91-70). Immersion method, using two temperatures.

1,930,666. Method of and apparatus for coating. Waldemar Schwalbe and Otto Herrmann, assignors to Du Pont Cellophane Company, Inc., New York, N. Y. Filed Dec. 12, 1930. 12 claims. (Cl. 91-32).

1,930,749. Coloring material apparatus. Charles P. Haff, assignor to Ambler Asbestos and Sheathing Company, Ambler, Pa. Filed Apr. 10, 1930. 15 claims. (Cl. 91-44).

1,930,831. Moisture or consistency indicator. George E. Webb, assignor to Koehring Company, Milwaukee, Wis. Filed Mar. 12, 1929. 4 claims. (Cl. 175-183).

1,931,062. Paper making machinery. James K. Darby, assignor to William H. Millspaugh, Sandusky, Ohio. Filed Dec 23, 1929. 72 claims. (Cl. 92-44).

1,931,365. Machine for forming diagonally corrugated board. Edgar Watson, assignor to The Lafayette Company, Baltimore, Md. Filed Dec. 5, 1931. 13 claims. (Cl. 154-30).

October 24, 1933

1,931,508. Paper pulp extractor. Lemuel V. Reese and George W. Johnson, assignors to The American Laundry Company, Cincinnati, Ohio. Filed Nov. 30, 1931. 3 claims. (Cl. 92-34).

1,931,536. Process for recovering and utilizing values from black liquor. Edward G. Goodell, Stevens Point, Wis. Filed July 25, 1931. 7 claims. (Cl. 23-48). Method of combustion of black liquor.

1,931,570. Method for manufacturing artificial lumber. Horatio W. Brown and Cyrus J. Taylor, assignors to Bemis Industries, Inc., Boston, Mass. Filed Mar. 7, 1929. 11 claims. (Cl. 154-2).

1,931,575. Method of manufacturing cellulose. Joaquin Julio de la Roza, Sr., Tuinucu, Cuba. Filed Oct 10, 1929. 6 claims. (Cl. 92-11). Use of a concentrated aqueous sulphur dioxide and then alkali.

1,931,667. Process for reproducing marbleized surfaces on composite building materials. Emil C. Loetscher, Dubuque, Iowa. Filed Feb. 26, 1931. 6 claims. (Cl. 91-68). Method of transferring a pattern to a fibrous sheet.

1,931,933. Manufacture of high alpha cellulose pulp. William D. Nicoll, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Jan. 6, 1933. 9 claims. (Cl. 92-13). Gramineous fiber free from pitch is digested with alkali at 130-160 deg. C.

1,932,144. Building material. Carl J. Pater, assignor to The Philip Carey Manufacturing Company, Lockland, Ohio. Filed Feb. 26, 1926. 3 claims. (Cl. 154-51). A roofing material.

1,932,203. Joint or seam construction for drier felts and the like. James K. Diamond, assignor to Clipper Belt Lace Company, Grand Rapids, Mich. Filed May 26, 1933. 9 claims. (Cl. 24-33).

1,932,250. Method and apparatus for thawing pulpwood prior to drum barking. Peter A. Paulson, Appleton, Wis. Filed Feb. 12, 1931. 2 claims. (Cl. 144-208).

1,932,361. Backing material. Ralph M. Freydberg, assignor to Respro, Inc., a Corporation of Rhode Island. Filed May 27, 1933. 6 claims. (Cl. 91-68).

October 31, 1933

R18,983. Manufacture of carbonate filled sized paper. Harold Robert Rafton, assignor to Raffold

Process Corporation, Andover, Mass. Original No. 1,803,647, dated May 5, 1931. Application for reissue June 13, 1932. 42 claims. (Cl. 92-21).

1,932,457. Digester. James L. Green, assignor to National Carbon Company, Inc., Cleveland, Ohio. Filed June 18, 1932. 6 claims. (Cl. 92-19). Lining of carbon brick.

1,932,663. Method of and machine for screening pulp. Anton Joseph Haug, Nashua, N. H. Filed Nov 8, 1930. 22 claims. (Cl. 92-34).

1,932,675. Attachment for paper cutting machines. William M. Reichart, assignor to The Chandler and Price Company, Cleveland, Ohio. Filed Dec. 21, 1931. 9 claims. (Cl. 164-59).

1,932,727. Coating machine. James W. Faulkner, Irvington, N. J. Filed May 31, 1929. 2 claims. (Cl. 91-43).

1,932,807. Plastic acoustic pulp. Mario Valdastri, Honolulu, Hawaii. Filed Oct. 28, 1932. 3 claims. (Cl. 106-36). Cellulose, asbestos, zinc sulphate and a binder.

1,932,885. Method and apparatus for digesting fibrous material. Thomas L. Dunbar, Watertown, N. Y. Filed May 17, 1930. 24 claims. (Cl. 92-7). Method for filling digesters charged with fibrous material.

1,932,904. Process of making paper pulp. Ralph H. McKee, New York, N. Y. Filed Jan. 4, 1933. 16 claims. (Cl. 92-9). Alkali-treated fibrous material is treated to the action of a mixture of chlorine gas and air.

1,932,942. Method of and machine for making tubes. Chester H. Thordarson, Chicago, Ill. Filed Sept. 4, 1930. 32 claims. (Cl. 93-80).

1,932,956. Method of making wall board. Dean De Forest Crandall, assignor to National Gypsum Company, Buffalo, N. Y. Filed Feb. 23, 1933. 8 claims. (Cl. 154-2).

1,932,989. Method of and apparatus for applying adhesive. Ernest G. Rider, assignor to Stokes and Smith Company, Philadelphia, Pa. Filed July 13, 1931. 17 claims. (Cl. 91-49).

1,933,006. Mechanism for water-marking paper. Howard Brown, assignor to Southworth Company, West Springfield, Mass. Filed Feb. 15, 1932. 5 claims. (Cl. 92-48).

1,933,017. Production of cellulose pulp. Oscar Victor Emanuel Jansa and Erik Gunnar Planck, Stockholm, Sweden. Filed Jan. 15, 1932. 12 claims. (Cl. 92-7). Raw material is introduced into digester in admixture with excess of liquor and withdrawing it from the digester.

1,933,026. Adhesive and adhesive coated tape. Kenneth Latimer Osmun, assignor to Union Selling Company, Cincinnati, Ohio. Filed Apr. 15, 1931. 4 claims. (Cl. 91-68). Making tape from paper web.

1,933,120. Apparatus for and method of making envelopes. William H. Rife, assignor to Columbia Envelope Company, Chicago, Ill. Filed Feb. 8, 1932. 7 claims. (Cl. 93-73).

1,933,121. Apparatus for making lined envelopes. William H. Rife, assignor to Columbia Envelope Company, Chicago, Ill. Filed Feb. 8, 1932. 3 claims. (Cl. 93-63).

1,933,154. Dandy roll construction. John A. Spencer, South Hadley Falls, Mass. Filed Aug. 25, 1932. 2 claims. (Cl. 92-48).

1,933,180. Method and apparatus for forming closures for paper containers. Günther Meyer-Jagenberg, Dusseldorf, Germany. Filed Dec. 6, 1932. 7 claims. (Cl. 93-36).

1,933,227. Recovery of pulp from waste paper. Francis H. Snyder and Stanley F. M. Maclaren, assignor to Industrial Research Limited, Niagara Falls, Ontario, Canada. Filed Nov. 10, 1931. 7 claims. (Cl. 92-9). Waste paper is treated with a solvent for linseed oil varnish and beaten with sodium silicate.

1,933,228. Recovery of pulp from waste paper. Francis H. Snyder and Stanley F. M. Maclaren, assignors to Industrial Research Limited, Niagara Falls, Ontario, Canada. Filed Nov. 18, 1931. 12 claims. (Cl. 92-9). Waste paper is beaten with alkali metal aluminate and titanates.

1,933,254. Black liquor recovery process and apparatus. Edward G. Goodell, Stevens Point, Wis. Filed March 28, 1932. 7 claims. (Cl. 23-48). Combined smelter and steam generator.

1,933,255. Apparatus for recovering black liquors. Edward G. Goodell, Stevens Point, Wis. Filed Nov. 22, 1932. 11 claims. (Cl. 23-277). A smelting furnace, a steam generator and a spray drier.

1,933,445. Manufacture of fertilizers by alkaline digestion of cellulose materials. Harold R. Murdock, assignor to The Champion Fibre Company, Canton, N. C. Filed July 3, 1930. 10 claims. (Cl. 71-9). Alkaline waste liquor is neutralized with nitric acid and phosphoric acid and their acid salts.

1,933,466. Paper and other fibrous sheet material hood cap. Wilbur L. Wright, assignor to Oswego Falls Corporation, Fulton, N. Y. Filed Nov. 30, 1925. 11 claims. (Cl. 215-38). Fibrous material carrying a quick-setting hard water-resistant plastic binder composition that embodies a small percentage of sulphur.

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1,933,609. Multiple stage pulp washer. Charles L. Wagner, assignor to J. O. Ross Engineering Corporation, New York, N. Y. Filed Feb. 17, 1932. 6 claims. (Cl. 141-12).

1,933,814. Stock consistency control. Darcy E. Lewellen and Emmons F. Lewellen, Columbus, Ind. Filed June 27, 1930. 17 claims. (Cl. 92-46).

1,933,824. Photographic paper. Paul C. Seel, assignor to Eastman Kodak Company, Rochester, N. Y. Filed July 2, 1931. 3 claims. (Cl. 95-8).

1,933,837. Doctor blades for rolls, cylinders and the like. Oliver P. Arnold, assignor to W. E. Greene Corporation, New York, N. Y. Filed March 22, 1932. 5 claims. (Cl. 92-74).

1,933,934. Board making machine. George H. A. Ruby, Grand Rapids, Mich. Filed April 18, 1931. 16 claims. (Cl. 92-39).

1,933,963. Process for coating paper. Donald B. Bradner, assignor to The Champion Coated Paper Company, Hamilton, Ohio. Filed Dec. 18, 1931. 7 claims. (Cl. 91-68).

1,934,233. Paper calender pressure regulator. Bernard A. Malkin, assignor to Dominion Engineering Works Limited, Lachine, Quebec, Canada. Filed Jan. 9, 1931. 12 claims. (Cl. 92-75).

1,934,540. Apparatus for drying paper cups. Vincent E. Heywood, assignor to Unitied States Envelope Company, Springfield, Mass. Filed March 24, 1931. 8 claims. (Cl. 93-50).

1,934,543. Press for paper machines including screen faced roll. Carl Harry R. Johnson, assignor to Downingtown Manufacturing Company, Downingtown, Pa. Filed Nov. 30, 1932. 22 claims. (Cl. 92-49).

1,934,589. Method of and apparatus for making reenforced sheets. William H. Cannard, Green Bay, Wis. Filed May 10, 1929. 8 claims. (Cl. 92-40).

1,934,637. Reduction of solids. Harold Robert Rafton, assignor to Rafford Process Corporation, Andover, Mass. Filed July 18, 1930. 7 claims. (Cl. 83-94).

1,934,638. Alkaline filler. Harold Robert Rafton, assignor to Rafford Process Corporation, Andover, Mass. Filed July 18, 1930. 10 claims. (Cl. 91-68).

1,934,639. Alkaline filler. Harold Robert Rafton, assignor to Raffold Process Corporation, Andover, Mass. Filed July 18, 1930. 20 claims. (Cl. 91-68).

1,934,640. Satin white. Harold Robert Rafton, assignor to Rafton Engineering Corporation, Andover, Mass. Filed July 18, 1930. 5 claims. (Cl. 91-68).

1,934,641. Satin white. Harold Robert Rafton, assignor to Rafton Engineering Corporation, Andover, Mass. Filed July 18, 1930. 7 claims. (Cl. 91-68).

1,934,642. Clay. Harold Robert Rafton, assignor to Rafton Engineering Corporation, Andover, Mass. Filed July 18, 1930. 13 claims. (Cl. 91-68).

1,934,643. Wire cloth and method of producing the same. Harold Robert Rafton, assignor to Rafton Engineering Corporation, Andover, Mass. Filed Jan. 14, 1930. 6 claims. (Cl. 204-1).

1,934,655. Treatment of residual liquors. Linn Bradley and Edward P. McKeefe, assignors to Bradley-McKeefe Corporation, New York, N. Y. Filed Apr. 2, 1928. 19 claims. (Cl. 23-129). Solution containing sodium sulphide is treated with ammonium, calcium or magnesium sulphites and magnesium sulphate and heated to remove a volatile sulphide therefrom.

1,934,666. Roofing. Herbert G. Goslin, assignor to Sherriff-Goslin Company, Battle Creek, Mich. Filed March 25, 1929. 5 claims. (Cl. 108-7).

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1,934,824. Tracing material. Waldemar Schwalbe, Edgar Fuchs and Otto Schnecko, assignors to Du Pont Cellophane Company, Inc., New York, N. Y. Filed Dec 12, 1930. 17 claims. (Cl. 91-68).

1,934,913. Paper handling apparatus. Harry A. Crisp, assignor to The Appleton Coated Paper Company, Appleton, Wis. Filed Jan. 17, 1931. 12 claims. (Cl. 242-56).

1,934,957. Process for the manufacture of paper pulp. Sidney D. Wells, assignor to Lewis L. Alsted, Appleton, Wis. Filed Dec. 16, 1932. 8 claims. (Cl. 92-13). Method of handling wood containing foam producing substances.

1,935,031. Gluing machine. Frank M. Joslin, Amsterdam, N. Y. Filed Feb. 11, 1930. 11 claims. (Cl. 91-18).

1,935,032. Box machine. Frank M. Joslin, assignor to Inman Manufacturing Company, Inc., Amsterdam, N. Y. Filed June 15, 1932. 19 claims. (Cl. 93-51).

1,935,129. Cellulose fiber of low solution viscosity and process of producing the same. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed June 17, 1929. 11 claims. (Cl. 260-10). Cellulose is treated with caustic soda and a soluble permanganate under non-mercerizing and then under mercerizing temperature conditions.

1,935,164. Calender doctor assembly. Andrew N. Russell, assignor to Dominion Engineering Works, Limited, Lachine, Quebec, Canada. Filed Jan. 9, 1931. 21 claims. (Cl. 92-74).

1,935,170. Antiseptic absorbent and process for the manufacture of the same. Regina J. Woody and McIver Woody, Elizabeth, N. J. Filed Feb. 3, 1931. 11 claims. (Cl. 92-41). Antiseptic is added while the web is on the drying roll.

1,935,189. Process of making rubber fabric sheet material and product produced thereby. Chester E. Linscott, assignor to American Rubber Company, East Cambridge, Mass. Filed July 15, 1931. 14 claims. (Cl. 91-68).

1,935,196. Preservation of fibrous products. Elbert C. Lathrop and Fergus A. Irvine, assignors to The Celotex Company, Chicago, Ill. Filed June 27, 1930. 36 claims. (Cl. 92-31). Use of ferric hydroxide and arsenious acid.

1,935,214. Method and machine for making corrugated fiber board. Arthur C. Schroeder, assignor to Consolidated Paper Company, Monroe, Mich. Filed June 28, 1930. 25 claims. (Cl. 154-33).

1,935,380. Method of making a multi-ply bag. Harold Smithwick, assignor to Continental Paper and Bag Corporation, New York, N. Y. Filed Nov. 1, 1930. 7 claims. (Cl. 93-35).

1,935,461. Rubbish separator for stock for paper mills. Charles Wilbert Unkle and Harry Claude McNaughton, Baltimore, Ohio. Filed July 21, 1932. 13 claims. (Cl. 92-28).

1,935,482. Paper manufacture. James J. O'Connor and Donald F. Morris, assignors to The Mead Corporation, Dayton, Ohio. Filed Feb. 4, 1929. 16 claims. (Cl. 92-21). Use of lime sludge as a body filler.

1,935,522. Apparatus for scoring paper, cardboard or like material. Alfred Prior, Deptford, London, England. Filed Oct. 17, 1932. 1 claim. (Cl. 164-60).

1,935,579. Two-step chemical process of fiber liberation. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Feb. 15, 1930. 7 claims. (Cl. 92-11). Use of an alkaline, sodium base liquor and then a neutral solution of only a sulphite.

1,935,580. Processing of cellulose fiber. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed March 22, 1932. 9 claims. (Cl. 92-9). Pulp is digested above 150 deg. C. in a solution of a chemical selected from a group consisting of the soluble borates, aluminates and silicates.

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1,935,656. Shingle strip. Charles W. Mortimer, assignor to The Barrett Company, New York, N. Y. Filed Oct. 22, 1932. 3 claims. (Cl. 108-7).

1,935,692. Process for preparing vulcanized fiber. Ernst Becker and Karl Letters, assignors to I. G. Farbenindustrie Aktiengesellschaft, Frankfort-on-the-Main, Germany. Filed Sept. 22, 1930. 6 claims. (Cl. 8-20). Use of zinc chloride containing three per cent of an alkali or alkaline earth salt.

1,935,728. Chemical pulping process. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Oct. 27, 1931. 5 claims. (Cl. 92-9). Manila, sisal and ramie are treated with an oxidizing reagent (chlorine water and hypochlorite liquor) and then pulped with sodium sulphite.

1,935,731. Adhesive applying mechanism. Edwin G. Staude, Minneapolis, Minn. Filed June 25, 1932. 16 claims. (Cl. 91-50).

1,935,769. Glue or gelatine coating composition. Charles le Bos d'Espinoy, assignor to Malcolm C. Rorty, Lusby, Maryland. Filed Oct. 22, 1931. 3 claims. (Cl. 134-23).

1,935,832. Die for forming paper cups. Frederick J. De Lackmer, Whitestone, N. Y. Filed July 18, 1931. 9 claims. (Cl. 93-51).

1,935,837. Water extracting means for cylinder paper machines. Charles L. Ellis, assignor to Downingtown Manufacturing Company, Downingtown, Pa. Filed Jan. 25, 1932. 15 claims. (Cl. 92-42).

1,935,875. Stencil sheet and process for forming the same. Louis E. Fuller, New York, N. Y. Filed Mar. 19, 1932. 19 claims. (Cl. 41-38.6). Fibrous material impregnated with protein and a higher fatty acid anhydride.

1,935,900. Paper radiator shields. Ben Altheimer, assignor to Myrtle Altheimer, University City, Mo. Filed Jan. 13, 1930. 2 claims. (Cl. 93-1).

1,936,023. Grindstone for grinding wood pulp. Andreas Jordan, Dresden, Germany, Filed Oct. 30, 1931. 7 claims. (Cl. 51-206).

1,936,040. Method and apparatus for manufacturing cork board and artificial leather. Masuzo Shikata, Sayko-Ku, Kyoto, Japan. Filed Oct. 22, 1930. 2 claims. (Cl. 204-1).

1,936,049. Regulating system. Clayton D. De Mers and Raymond E. Olson, assignors to Taylor Instrument Companies, Rochester, N. Y. Filed Oct. 3, 1931. 10 claims. (Cl. 92-46). Method of controlling the thickness of machine-made paper.

1,936,055. Composite shingle. Donald Heaney, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed Aug. 8, 1929. 3 claims. (Cl. 108-8).

1,936,136. Method of manufacturing a cardboard box. Anders Gustav Sebastian Lindgren, assignor to Aktiebolaget Alos, Goteborg, Sweden. Filed Mar. 17, 1933. 5 claims. (Cl. 93-30).

1,936,225. Means and method for indicating weight and moisture variations in paper machines and the like. Arthur E. Broughton, Minneapolis, Minn. Filed Apr. 7, 1930. 7 claims. (Cl. 34-48).

1,936,286. Mineral coated paper. Donald B. Bradner, assignor to The Champion Coated Paper Company, Hamilton, Ohio. Filed Dec. 17, 1931. 4 claims. (Cl. 91-68).

1,936,327. Roofing element. Albert C. Fischer, assignor to The Philip Carey Manufacturing Company, Cincinnati, Ohio. Filed Aug. 26, 1929. 11 claims. (Cl. 108-7).

1,936,341. Device for distributing wood chips in pulp digesters. Walter H. Swanson, assignor to Paper Patents Company, Neenah, Wis. Filed Nov. 5, 1931. 14 claims. (Cl. 92-7).

1,936,355. Wall covering material and method of making the same. Louis Carl Fleck, assignor to Paper Patents Company, Neenah, Wis. Filed June 23, 1931. 11 claims. (Cl. 91-68). Embossed cellulosic sheet coated with a dry and highly flexible waterproof protective material (shellac and rubber).

1,936,375. Laminated sheet material. Chester E. Beecher, assignor to The Glassine Paper Company, West Conshohocken, Pa. Filed Dec. 18, 1929. 1 claim. (Cl. 154-50).

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1,936,609. Paper making apparatus. Benjamin E. Teale, Lee, Mass. Filed July 5, 1932. 15 claims. (Cl. 92-44). Unitary slice device.

1,936,651. Method of drying moistened sheet material. Charles C. Willis, assignor to John Waldron Corporation, New Brunswick, N. J. Filed Oct. 3, 1930. 5 claims. (Cl. 34-24).

1,936,697. Paper manufacture. John Traquair, assignor to The Mead Research Engineering Company, Dayton, Ohio. Filed July 11, 1931. 20 claims. (Cl. 92-6). Chips are treated in a rod mill with caustic soda below 50 deg. C.

1,936,843. Production of wood fiber mass. Jonas Jonsson, Stockholm, Sweden. Filed July 21, 1930. 4 claims. (Cl. 92-20).

1,937,027. Box folding machine. John William Low, assignor of one-half to Edgar L. Stern and one-half to Raoul J. Gruenberg, San Francisco, Calif. Filed Nov. 23, 1931. 12 claims. (Cl. 93-49).

1,937,073. Disbarking machine. Heinrich Stüve, Mecklenburg, Germany. Filed Dec. 11, 1931. 9 claims. (Cl. 144-208).

1,937,125. Paper making machine. John P. Pederson, Chicago, Ill. Filed Apr. 10, 1931. 27 claims. (Cl. 92-44). Method of removing an endless wire screen from a fourdrinier machine.

1,937,156. System of beater engines. William V. Knoll, assignor to The Midwest-Fulton Machine Company, Dayton, Ohio. Filed June 28, 1928. 26 claims. (Cl. 92-20).

1,937,164. Machine for coating paper and fabrics. Ross S. Phillips, assignor to The Cleveland Liner and Manufacturing Company, Cleveland, Ohio. Filed Aug. 23, 1928. 7 claims. (Cl. 91-53).

1,937,205. Storage battery separator. John H. Reilly, assignor to The Richardson Company, Lockland, Ohio. Filed April 18, 1929. 10 claims. (Cl. 136-148). Jute fiber is treated with silicate of soda, asphaltum and fiber.

1,937,255. Composite shingle. Hubert Porter Taylor, Union City, Tenn., assignor of one-half to Robert H. Taylor, Martin, Tenn. Filed July 13, 1932. 2 claims. (Cl. 108-8).

1,937,274. Screen plate. Alfred D. Hoyle and Frederick B. Olson, assignors to Brown Company, Berlin, N. H. Filed March 12, 1931. 8 claims. (Cl. 92-30).

1,937,317. Process for sizing fibrous material. Philip W. Codwise, assignor to Certain-teed Products Corporation, New York, N. Y. Filed Nov. 8, 1927. 4 claims. (Cl. 92-40). Size applied to paper after drying, so that it is for the most part a surface coating.

1,937,366. Process for producing synthetic lumber that is not attacked by insects. Orland R. Sweeney, assignor to Iowa State College of Agriculture and Mechanical Arts, Ames, Iowa. Filed Feb. 9, 1931. 10 claims. (Cl. 92-21).

1,937,426. Suction cylinder mold for paper making machines. Theodore L. Formaini, Erie, Pa. Filed Oct. 18, 1932. 2 claims. (Cl. 92-43).

1,937,464. Pulp molding machine. Hans P. G. Norstrand, assignor to Standard Pulp Products Co., Inc., New York, N. Y. Filed Apr. 7, 1932. 14 claims. (Cl. 92-56).

1,937,478. Oscillating suction box. William P. Muir, assignor to Dominion Engineering Works Limited, Montreal, Quebec, Canada. Filed Oct. 21, 1931. 17 claims. (Cl. 92-51).

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1,937,501. Machine for making and filling packages. John P. Aldrich, Toledo, Ohio. Filed June 1, 1931. 21 claims. (Cl. 93-3).

1,937,526. Pulp screen. Thomas O'Connor, Philadelphia, Pa. Filed Apr. 12, 1932. 14 claims. (Cl. 92-36).

1,937,679. Fireproof fiber board. John A. Wiener and John B. Harmon, Oswego, N. Y. Filed Sept. 21, 1932. 1 claim. (Cl. 92-21). Fibers and mica are impregnated with ammonium sulphate, borax, and zinc chloride.

1,937,680. Moldable material. Howard James Billings, assignor to Arthur D. Little, Incorporated, Cambridge, Mass. Filed Nov. 6, 1929. 20 claims. (Cl. 154-2).

1,937,703. Method of preventing expansion and contraction of printing paper. Joseph L. Kelly and Rudolph Brenner, St. Louis, and John P. Hoffer, Kirkwood, Mo. Filed May 19, 1930. 4 claims. (Cl. 91-68).

1,937,750. Flexible stencil card and holder therefor. Harmon P. Elliott, assignor to Elliott Addressing Machine Company, a Corporation of Massachusetts. Filed March 23, 1932. 2 claims. (Cl. 101-127).

1,937,751. Colored stencil and method of making same. Harmon P. Elliott, assignor to Elliott Addressing Machine Company, a Corporation of Massachusetts. Filed Oct. 12, 1932. 10 claims. (Cl. 41-38.5).

1,937,933. Shingle strip. Frank W. Yeager, assignor to The Barrett Company, New York, N. Y. Filed July 15, 1931. 2 claims. (Cl. 108-7).

1,937,967. Plasterboard and method of manufacturing same. George D. King and James S. Offutt, assignors to United States Gypsum Company, Chicago, Ill. Filed March 28, 1930. 11 claims. (Cl. 154-2).

1,938,060. Process for the treatment of fibrous plants for the recovery of the fibers thereof. Bernard Bedingfield Wood, Christchurch, New Zealand. Filed Sept. 14, 1932. 5 claims. (Cl. 92-1).

1,938,133. Treatment of glassine paper. Roy C. Charron and Williard E. Swift, assignors to United States Envelope Company, Springfield, Mass. Filed Oct. 27, 1927. 5 claims. (Cl. 91-68). Paper is softened to improve texture and treated with nitrocellulose.

1,938,227. Process for producing synthetic lumber that is not attacked by insects. Orland R. Sweeney, assignor to Iowa State College of Agriculture and Mechanical Arts, Ames, Iowa. Filed April 13, 1931. 6 claims. (Cl. 92-40).

1,938,351. Waterproof insulating board. Everett S. Penn, assignor to Armstrong Cork Company, Lancaster, Pa. Filed August 27, 1931. 2 claims. (Cl. 154-44).

1,938,444. Press roll. John Warren Vedder, assignor to Rice, Barton and Fales, Incorporated, Worcester, Mass. Filed June 29, 1932. 3 claims. (Cl. 92-49).

1,938,543. Method of making paper. Justus C. Sanburn, assignor to Strathmore Paper Company, West Springfield, Mass. Filed Nov. 16, 1932. 2 claims. (Cl. 92-21).

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1,938,637. Suction chest facing for paper machines and method of manufacturing the same. Wilhelm. Poeschl, Rudolf Poeschl and Wilhelm Roth, assignors to the firm Rohrbacher Lederfabrik Josef Poeschls Söhne A. G. Rohrbach, Austria. Filed March 28, 1933. 15 claims. (Cl. 92-51). At least such portions thereof as come into direct contact with strainers consist of leather.

1,938,693. Process for refining sulphate wood turpentine. Wilbur F. Gillespie and Daniel M. Wadsworth, assignors to Bogalusa Paper Company, Incorporated, Bogalusa, La. Filed June 27, 1933. 12 claims. (Cl. 87-2). Offensive odors are removed by treatment with ethylenediamine or its equivalent.

1,938,746. Process for rendering fibrous materials noninflammable. Rudolf Engelhardt, assignor to I. G. Farbenindustrie Aktiengesellschaft, Frankfort-on-the-Main, Germany. Filed Jan. 13, 1931. 8 claims. (Cl. 91-68). Preliminary treatment with dichlorinated naphthalene.

1,938,790. Spray treating of web material on the paper machine. Edmund P. Arpin, Jr., Port Edwards, Wis. Filed April 13, 1931. 10 claims. (Cl. 92-40). The web material passing through the machine while in a heated condition is sprayed with a liquid treating material.

1,938,802. Continuous process and apparatus for pulping fibrous materials. Carl E. Braun and Alrik H. Lundberg, assignors to Chemipulp Process, Inc., Watertown, N. Y. Filed Apr. 19, 1932. 38 claims. (Cl. 92-7). Use of a plurality of superposed digesters, using a determined pressure in each chamber independently for the pressure existing in the other chamber.

1,938,859. Bag making machine. Adolph Potdevin, assignor to Potdevin Machine Company, Brooklyn, N. Y. Filed Oct. 31, 1928. 3 claims. (Cl. 101-181).

1,938,861. Machine for putting wax carbon spots on paper. Alexander B. Roe, Athens, Ohio. Filed Aug. 12, 1932. 10 claims. (Cl. 101-114).

1,938,909. Paper pulp plate. Ernest Huff, assignor to American Lace Paper Company, Milwaukee, Wis. Filed Oct. 24, 1931. 4 claims. (Cl. 229-2.5).

1,938,910. Method of making foldable paper boxes. George M. Keller, assignor to Stecher Lithographic Co., Rochester, N. Y. Filed July 1, 1932. 1 claim. (Cl. 93-36).

1,938,917. Insulating material and process for making the same. Emil C. Loetscher, Dubuque, Iowa. Filed March 3, 1930. 1 claim. (Cl. 154-2.6).

1,938,949. Waxed wrapper. Carroll B. Wilkins, assignor to Nashua Gummed and Coated Paper Company, Nashua, N. H. Filed Dec. 4, 1931. 18 claims. (Cl. 91-67.9).

1,939,004. Air, moisture and sound proof material. Albert Charles Fischer, assignor to The Philip Carey Manufacturing Company, Cincinnati, Ohio. Filed Nov. 8, 1919. 19 claims. (Cl. 154-51). A building material.

1,939,081. Machine for decorating and/or trademarking paper, cardboard and the like. George James Prager, New York, N. Y. Filed June 28, 1933. 7 claims. (Cl. 101-3).

1,939,082. Fiber board and method of manufacturing same. Robert G. Quinn, assignor to International Paper Company, New York, N. Y. Filed July 18, 1930. 18 claims. (Cl. 92-21). Method of fireproofing.

1,939,101. Method of and apparatus for blending pulp. Randolph V. Bingham, Portland, Ore. Filed Sept. 30, 1931. 7 claims. (Cl. 92-20). Pulp mixer with plurality of pumps.

1,939,198. Paper rewinder. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed March 23, 1931. 20 claims. (Cl. 242-66).

1,939,225. Agitating tank for cellulose pulp and similar substances. Olaf Qviller, assignor to A/S Thunes mek. Vaerksted, Skoyen, near Oslo, Norway. Filed Oct. 17, 1932. 7 claims. (Cl. 92-37). Circulation pumps are arranged at different levels in the tank.

1,939,246. Paper shredding machine. Louie J. Antonsen, Seattle, Wash. Filed Sept. 9, 1930. 8 claims. (Cl. 92-20).

1,939,337. Plant and apparatus for making paper. James K. Darby, assignor to William H. Millspaugh, Sandusky, Ohio. Filed Sept. 24, 1928. 81 claims. (Cl. 92-44).

1,939,359. Device for applying adhesive to envelope blanks or the like. Robert A. Nelson, assignor to The Standard Envelope Manufacturing Company, Cleveland, Ohio. Filed April 28, 1931. 6 claims. (Cl. 93-68).

1,939,360. Envelope folding machine. Robert A. Nelson, assignor to The Standard Envelope Manufacturing Company, Cleveland, Ohio. Filed April 28, 1931. 6 claims. (Cl. 271-45).

1,939,378. Process of making safety paper by one continuous operation. Frank S. Wood, assignor to Inkset Safety Paper Co., a Corporation of Massachusetts. Filed Nov. 8, 1930. 1 claim. (Cl. 91-67.95).

1,939,404. Manufacture of pressed cellulose articles. Adrian Nagelvoort, assignor to Deleware Chemical Engineering Company, Wilmington, Del. Filed Nov. 15, 1932. 7 claims. (Cl. 92-21). Cellulose article containing sulphur.

1,939,411. Weight regulating apparatus for paper stock. Ernest Poirier, Waterville, Maine. Filed Feb. 23, 1933. 15 claims. (Cl. 92-46).

1,939,430. Sampling tool for pulp or the like. Arthur Burton Andrews, Auburn, Maine. Filed Dec. 16, 1931. 2 claims. (Cl. 83-15).

1,939,518. Apparatus for forming fiber sheet. Henry W. Piquet, assignor to MacAndrews and Forbes Company, Camden, N. J. Filed Jan. 29, 1932. 5 claims. (Cl. 92-42).

1,939,528. Wall board and joint. Clement K. Swift, assignor to MacAndrews and Forbes Company, Camden, N. J. Filed May 27, 1932. 2 claims. (Cl. 72-31).

1,939,571. Paper tacking machine. Fritz Rau, assignor of one-third each to Mrs. Heinrich Bruns and Heinrich Steinberg, Munich, Germany. Filed Jan. 18, 1932. 1 claim. (Cl. 93-1). Tacking or crimping machine.

1,939,590. Wood meter. Hervey G. Cram, assignor to Maine Seaboard Paper Company, Bucksport, Maine. Filed May 9, 1932. 2 claims. (Cl. 33-141).

1,939,616. Pulpboard. Hubert L. Becher, assignor to The Agasote Millboard Company, Ewing Township, N. J. Filed Dec. 11, 1930. 1 claim. (Cl. 92-3). Board containing paraffin and montan wax (as metallic salt).

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1,939,745. Art of making receptacles. Charles P. Wellman, West Medford, Mass. Filed Jan. 8, 1932. 5 claims. (Cl. 93-49).

1,939,747. Fiber-stock refiner. John A. Wiener, Oswego, N. Y. Filed June 29, 1932. 8 claims. (Cl. 92-27).

1,939,797. Paper drinking cup and manufacture of same. Willard E. Swift, assignor to United States Envelope Company, Springfield, Mass. Filed Feb. 19. 1930. 2 claims. (Cl. 229-53).

1,939,814. Apparatus for testing printing ink and paper. Fred W. Hoch, Brooklyn, N. Y. Filed Feb. 15, 1930. 13 claims. (Cl. 73-51).

1,939,821. Transfer and method of making the same. Winthrop Stanley Lawrence, assignor to Kaumagraph Company, New York, N. Y. Filed Jan. 20, 1933. 4 claims. (Cl. 41-33). Uses a paper base.

1,989,842. Method of and apparatus for impregnating and/or surface coating fabrics. Carlton W. Crumb and Frank M. Saunders, assignors to Oliver Unitied Filters, Inc., San Francisco, Calif., and St. Clair Rubber Company, Marysville, Mich. Filed May 23, 1930. 9 claims. (Cl. 91-68). Coating a sheet of low tensile strength.

1,939,925. Paper slitting apparatus. Fred Schwartz, assignor to Fort Howard Paper Company, Green Bay, Wis. Filed Apr. 29, 1931. 2 claims. (Cl. 164-65).

1,939,948. Roll. Charles Berlow, assignor to American Wringer Co., Woonsocket, R. I. Filed Dec. 14, 1931. 19 claims. (Cl. 92-44). Wooden roll covered with rubber vulcanized thereto at a temperature below the charring point of wood.

1,940,106. Means for and method of making grooved fibrous board. George C. Snyder, assignor to The Guardian Trust Company, Cleveland, Ohio. Filed Aug. 16, 1930. 20 claims. (Cl. 164-60).

1,940,136. Process of sulphite cellulose digestion. Gustaf Haglund, assignor to Patentaktiebolaget Gröndal-Ramen, Stockholm, Sweden. Filed Apr. 10,

1931. 14 claims. (Cl. 92-11). Sulphite process in which portion of first cooking liquor is withdrawn and sulphur dioxide added, using waste liquor as a carrier.

1,940,154. Apparatus for handling green plaster board. John J. Sylva, assignor to California Cedar Products Company, Stockton, Calif. Filed May 2, 1932. 20 claims. (Cl. 271-63).

1,940,363. Gummed paper. William W. McLaurin, Brookfield, Mass. (Old Colony Trust Company, executor of will). Filed Dec. 19, 1928. 1 claim. (Cl. 91-69). Paper adapted to adhere to glass.

1,940,559. Method of uniting wax fabrics. Stuart Moore, assignor to Dixie Wax Paper Company, Inc., Dallas, Texas. Filed March 16, 1932. 3 claims. (Cl. 154-42).

1,940,560. Paper bag making machine. Stuart Moore, assignor to Dixie Wax Paper Company, Inc., Dallas, Texas. Filed July 9, 1932. 5 claims. (Cl. 93-20).

1,940,561. Apparatus for uniting wax paper. Stuart Moore, assignor to Dixie Wax Paper Company, Inc., Dallas, Texas. Filed Oct. 11, 1932. 5 claims. (Cl. 93-20).

1,940,594. Suction box. Carl Harry R. Johnson, Downingtown, Pa., and Homer H. Latimer, Hamilton, Ohio. Filed May 22, 1933. 17 claims. (Cl. 92-52).

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R19,036. Preparation of rosin solutions. Andre Thiriet and Pierre Delcroix, assignors to Procedes Navarre, Lyon, France. Original No. 1,759,526, dated May 20, 1930. Filed June 13, 1931. 4 claims. (Cl. 134-21). Dilute sodium hydroxide is passed directly over rosin.

1,940,852. Web controlling mechanism. Harland Fankboner, Chicago, Ill.. Filed Oct. 30, 1931. 7 claims. (Cl. 242-75).

1,940,974. Waterproof and water-repellant insulation. George D. Shaver, assignor to The Therminsul Corporation of America, Boston, Mass. Filed Jan. 7, 1931. 5 claims. (Cl. 92-21).

1,941,154. Process of reducing the solution viscosity of cellulose fiber. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Sept. 6, 1930. 6 claims. (Cl. 92-11). Cotton and pre-liberated wood pulp is treated above 150 deg. C. in a sulphurous acid solution of a sulphite containing no more free than combined sulphur dioxide.

1,941,255. Felted fabric. Charles A. Fourness, assignor to International Cellucotton Products Company, Chicago, Ill. Filed Mar. 11, 1932. 4 claims. (Cl. 154-46).

1,941,272. Method of and apparatus for making bags. Adolph Potdevin, assignor to Potdevin Machine Company, Brooklyn, N. Y. Filed June 12, 1931. 6 claims. (Cl. 93-18).

1,941,280. Friction material and method of making the same. Mark Shoeld, Pittsburgh, Pa. Filed Oct 6, 1928. 17 claims. (Cl. 18-47.5).

1,941,281. Ornamented felt and felt material. Ferdinand R. Stirn, assignor to F. and A. Stirn Corporation, New York, N. Y. Filed June 7, 1933. 2 claims. (Cl. 41-24).

1,941,350. Treatment of vegetable fibers to separate and recover the fibrous and nonfibrous constituents. Adolf Hawerlander, assignor to Albert D. Stewart, St. Joseph, Mo. (Hazel Stewart, administratrix). Filed May 27, 1932. 3 claims. (Cl. 92-1). The material is agitated with steam in a solvent to loosen and dissolve the nonfibrous constituent.

1,941,412. Process of making envelopes. Harold W. Nichols, Cincinnati, Ohio. Filed July 30, 1931. 6 claims. (Cl. 93-63).

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Paper Specialties

Rubber Coated Paper. Anon. Paper Mill 55, No. 51: 2, 12-13 (Dec. 17, 1932).—A brief discussion of the special qualities of lexene-coated papers (paper coated with a latex-composition patented by the U. S. Rubber Co.).—A. P.-C.

Paper Insulations. H. Warren. World's Paper Trade Rev. 98:2025-2028 (Dec. 23, 1932).—A brief discussion of the properties of paper insulations used in the electrical industry.—A. P.-C.

Heat- and Sound-Insulating Material. Alexander Melville, James T. Millar and Robert S. T. Henry. Brit. pat. 364,314 (Dec. 18, 1930).—The composition is a mixture of paper-mill waste (lime sludge, which is carbon and calcium carbonate and (or) "machine sludge", which is cellulose and china clay and kieselguhr or its equivalent) and, if desired, asbestos.—A. P.-C.

Board of Cellulosic Material. Wm. A. Darrah. U. S. pat. 1,892,873 (Jan. 3, 1933).—A board suitable for use as a plaster base is formed mainly of cellulosic material and is made with an absorbent core and a hard surface of chemically altered cellulose such as is produced by treating with caustic soda and sodium silicate and then with sulphuric acid. Apparatus and various details of manufacture are described.—A. P.-C.

Impregnating Fiber Board. Peter J. Wiezevich assignor to Standard Oil Development Co. U. S. pat. 1,892,658 (Dec. 27, 1932).—Before impregnation with a composition comprising montan wax or the like, the material is pretreated with an acidic gas such as chlorine, bromine, hydrochloric acid or sulphur dioxide in order to prevent subsequent spotting.—A. P.-C.

Building Board. Edward S. Sheperd assignor to Albert D. Stewart. U. S. pat. 1,891,732 (Dec. 20, 1932).—Relatively long cereal straw fibers are interlaced and felted into a rigid self-sustaining fibrous structure having a maximum thermal conductivity of about 0.34 B.t.u. per sq. ft. per hr. per in. of thickness per each degree F. difference in temperature (the fibers being relieved of gummy components naturally associated with the cereal straw by treatment with water, so that they are resilient and non-moisture-absorbent).—A. P.-C.

Grease-Resisting Paper. Carleton Ellis assignor to Ellis-Foster Co. U. S. pat. 1,892,939 (Jan. 3, 1933).—Paper is treated with nitrocellulose and a "polybasic" acid-polyhydric alcohol synthetic resin in sufficient amount to render the paper grease-repellant.—A. P.-C.

Wrapping Paper for Photographic Plates. H. Postl. Papier 36:251-252 (March, 1933).—A brief exposition of the qualities required with practical operation directions for obtaining them.—A. P.-C.

Paper for Use in Wrapping Conductors to Form Insulation. Joseph A. Kennedy assignor to Anaconda Wire and Cable Co. U. S. pat. 1,892,059 (Dec. 27, 1932).—In processing rolls of paper strip for forming insulating wrappings, the rolls are treated with a bath of wax to saturate the paper and then are treated in an aqueous soap solution to permeate and partially displace the wax with the soap at the edges of the strip and thus render the edges soft and pliable.—A. P.-C.

Artificial Leather. George A. Richter assignor to Brown Co. U. S. pat. 1,891,027 (Dec. 13, 1932).—A loosely felted uncompacted bibulous paper web of high alpha-cellulose wood fiber is impregnated with a volatilizable liquid such as acetone having a much lower surface tension than water alone to swell the web, and the material is dried and impregnated with rubber.—A. P.-C.

Method and Apparatus for Edge Rolling of Crepe Paper. Carl A. Friberg. U. S. pat. 1,904,825 (April 18, 1933).—The paper is pressed against a resilient pad surface which is simultaneously moved transversely relative to a working blade the edge of which is at an acute angle with the pad. The paper edge is fed between the blade and pad due to friction against the latter.—A. P.-C.

Hydrofuge Cellulose Wadding. Jean Schmidt. U. S. pat. 1,893,448 (Jan. 3, 1933). Cellulose pulp is sized, and the sized pulp is converted into wadding. Various details and examples are given.—A. P.-C.

Molding Pulp. Arnold Rutishauser. Brit. pat. 369,074 (May 30, 1930).—In casting hollow containers such as bottles from fibrous pulp in pervious molds, the zone of deposit of the pulp on the walls of the mold is advanced progressively from one end of the mold to the other and is regulatable at will. An apparatus is described.—A. P.-C.

Molding Pulp to Produce Fiber Sheets. Keyes Fiber Co., Inc. Brit. pat. 365,797 (Jan. 27, 1931).—An open-faced laminated suction die made of spaced plates is used. —A. P.-C.

Production of Molded Products From Impregnated Paper. Cie. Française pour l'Exploitation des Procédés Thomson-Houston. Fr. pat. 741,826.—Paper reinforced by a coarse fabric, or other textile fiber arrangement, is impregnated with an aqueous solution or pseudo-solution of urea-formaldehyde or alkyd synthetic resins and dried at 100 deg. C. Several plies of such treated paper are superposed and molded under a pressure of about 80 kg. per sq. cm. at a temperature of about 140 deg. C., for about 30 min.—A. P.-C.

The Conditioning of Paper for Printing. Philip H. Prior. World's Paper Trade Rev. 99:175-176, 213, 214; 247-250, 290, 293 (Jan. 20, 27, 1933).—A survey of the fundamentals, showing the need for more exploration.—A. P.-C.

Transparent Paper and Wrappings. Kenneth S. Low. Paper Maker & Brit. Paper Trade J. 84:61-63 (Annual No., 1932).—A brief comparison of the properties of waxed paper, cellophane, cellulose acetate film, gelatine films and cellulose nitrate film.—A. P.-C.

Waterproof Wrapping Paper. Auguste Raymond. Fr. pat. 739,871.—A water-proof paper which is not discolored and which can readily be printed upon is obtained by uniting two webs of paper by means of film or layer of rubber latex, which on drying leaves a film of rubber between the constituent sheets.—A. P.-C.

Embossed Kraft Paper and Process of Manufacture. M. Charriaud. Fr. addn. pat. 41,328.—This is a second addition to Fr. pat. 700,326, and provides various improvements in the construction of apparatus used to produce embossed kraft paper. More particularly, a liquid or pulverulent finishing coating is sprayed on moist or semi-moist kraft paper which is then passed around a hollow heated roll, the surface of which is provided with protuberances corresponding to the indentations desired in the surface of the paper *(e.g.,* a dried roll may be used, the surface of which is covered with sheet metal carrying the desired design in relief). A suitable rubber-covered roll or rubber band co-acts with the roll to press the paper into the desired embossed shape.—A. P.-C.

Process for the Manufacture of Board. P. B. Burchardt. Belg. pat. 390,368 (Sept. 30, 1932).—Two or more sheets or webs of cellulosic material are pressed together and combined by means of an adhesive such as asphalt or tar.—A. P.-C.

Paper Board. Charles L. Keller assignor to The Richardson Co. U. S. pat. 1,889,177 (Nov. 29, 1932).—In uniting outer and inner sheets of paper board, the inner sheet is coated with a heat-plastic binder such as asphalt while the latter is hot and non-solid, the coated sheet is cooled, the coating is softened by a solvent such as benzine and the outer sheets are applied.—A. P.-C.

New Type of Board Made from the Fibers of Tropical Plants, and Process for Its Manufacture. Société Socaprama. Fr. pat. 735,832.—Plants such as the cymbopogons are cut with a straw-cutter, steamed for about 1 hr. with saturated steam at a pressure of 5 or 6 kilos per sq. cm., cooked for 3 hrs. under a pressure of 1 or 2 kilos with milk of lime containing 4 to 10% quick lime on the weight of the plants, and ground in kollergangs. The resultant pulp is mixed with from 5 to 30% of "knot pulp" (either soda or sulphite) according to the state of maturity of the plants and the type of product which it is desired to produce.—A. P.-C.

Composite Sheet Material for Playing Cards, Etc. Marshall R. Howard. U. S. pat. 1,888,672 (Nov. 22, 1932). —Paper stock is impregnated with a potentially reactive resin, sheeted and the sheeted stock is coated with a pigment of white or light color and then calendered to form a printing surface; the calendered sheets are printed, a finishing coat such as a resin varnish is applied to the printed surface, followed by application of heat and pressure.—A. P.-C.

Fibrous Cellulose Sheets for Roofing, Flooring, Etc. George A. Richter and Henry A. Chase assignors to Brown Co. U. S. pats. 1,888,771 and 1,888,772 (Nov. 22, 1932).—*No. 1,888,771.*—Sheet material which may be impregnated with rubber, etc., is formed of loosely felted, substantially uncompacted and unbeaten wood pulp having an alpha-cellulose content of at least about 93% and has an absorptivity of at least about 6 in. in terms of water crawl up a strip in 5 min. *No. 1,888,772.*—A material of the general character described in the preceding patent, having a compactness within the range of about 30 to 55 as determined by dividing its basis weight in pounds by its thickness in inches and multiplying by the factor 10^{-2}, carries an impregnation of asphalt in continuous phase in a quantity at least about two and a half times the dry weight of the fiber.—A. P.-C.

Roofing. Leonard F. Long assignor to The Barrett Co. U. S. pat. 1,902,872 (March 28, 1933).—A sheet roofing material comprises a number of superimposed felt sheets. At least one of the felt sheets is formed with projections forming pockets extending towards an adjacent sheet, and a heavy coating of bituminous material is provided between the sheet having projections and the adjacent sheet.—A. P.-C.

Impregnated Roofing Paper and Method for Its Manufacture. Bitumen Investments. Inc. Fr. pat. 739,751. —Pulverulent or emulsified resins or bituminous materials are added to the stock in the beater or in the mixing chest. The stock is run on the paper machine in the usual manner; and after drying a bitumen softener or solvent is applied to both sides of the still hot sheet by spraying or by means of brushes or rolls. This effects rapid distribution of the resins or bitumen throughout the body of the sheet.—A. P.-C.

Producing Effects on Paper, Cardboard, Floor Covering, Etc. Carl Dankert assignor to I. G. Farbenindustrie A. G. U. S. pat. 1,889,953 (Dec. 6, 1932).—A solution of a cellulose ester or ether in an organic solvent is stirred into a precipitant, and the gelatinous precipitate, which may be produced in the form of filaments or fibers, is added to paper pulp, preferably without drying, or to plastic masses for the manufacture of floor coverings, etc. A dye or pigment may be included in the cellulose derivative solution.—A. P.-C.

Impregnated Paper. Marc Darrin assignor to F. N. Burt Co. U. S. pat. 1,889,088 (Nov. 29, 1932).—A material such as pulp or paper is impregnated with a mixture containing sulphur and chlorodiphenyl.—A. P.-C.

Heat-Insulating Paper. Louis Weber. U. S. pat. 1,887,726 (Nov. 15, 1932).—Heat-insulating paper is formed of slag wool and asbestos fibers together with a binder such as colloidal clay.—A. P.-C.

Reenforced Paper and Method of Making the Same. Henry D. Moore assignor to American Reenforced Paper Co. U. S. pat. 1,885,280 (Nov. 1, 1932).—A reenforced waterproof paper is formed of two sheets of paper each having a coating of adhesive applied to its inner face and a reenforcing sheet of fibrous material secured to each sheet of paper by the adhesive, a third coating of adhesive being interposed between the reenforcing sheets. At least one of the coatings is formed of a waterproof adhesive.—A. P.-C.

Method of Producing Markings and Designs on

Paper. Otto Kress. U. S. pat. 1,887,934 (Nov. 15, 1932). —For marking paper in a predetermined design, a bleaching compound such as sodium bisulphite is applied to predetermined areas of a damp sheet web of paper so that they will be bleached to a lighter color than the body of the sheet.—A. P.-C.

Process for the Manufacture of Paper. Naamlooze Vennootschap W. A. Scholten's Chemische Fabrieken. Fr. pat. 739,592.—Cold-water-soluble starch is added to the paper at any suitable stage in its manufacture.—A. P.-C.

Production of Sheets or Webs of Paper or Cardboard Coated on Both Sides with Metal Foil. L. Rado. Belg. pat. 390,568 (Sept. 30, 1932).—Two sheets, each having metal foil applied to one surface, are joined together at their uncoated faces by means of thermoplastic adhesive such as asphalt emulsion.—A. P.-C.

Laminated Product. Compagnie Française pour l'Exploitation des Procédés Thomson-Houston. Fr. pat. 737,718 (May 27, 1932).—Resinous compositions are incorporated in paper pulp while it is still wet, and the mixture is made into thick sheets by the usual machines, dried and molded under heat and pressure.—A. P.-C.

Impregnating Paper for Producing a Product of Good Flexibility. Frank G. Crane. U. S. pat. 1,889,151 (Dec. 6, 1932).—Paper is impregnated with a solution containing a substantial proportion of sodium silicate, soap and glycerine and subsequently is treated (as by oxalic acid or aluminum sulphate) to convert a substantial portion of the sodium silicate into reaction products, and is dried.—A. P.-C.

Fibrous Sheet Material Including Leather and Other Fibrous Admixture. George F. Davis. U. S. pat. 1,889,643 (Nov. 29, 1932).—Cellulose fiber is beaten in water until well hydrated; the resulting fiber in aqueous suspension is sized and then mixed with previously tanned leather fiber while substantially all of the water-soluble constituents of the latter (including tanning agent) are kept with it. The product may be formed into felted sheets for shoe counterboards, etc.—A. P.-C.

Insulating Materials. Gustave Risler. Fr. pat. 737,923 (Sept. 23, 1931).—Paper which is to be impregnated with an insulating mass is first opened up to receive the mass by treating it with a solution of a gas in liquid, such as ammonia in water or methanol, and then heating rapidly to liberate the gas suddenly. For heating, the paper may be immersed in a liquid heated to above the boiling-point of the liquid in which the gas is dissolved.—A. P.-C.

Sheet Packing and Molded Packings. Compagnie Générale d'Electricité. Brit. pat. 363,425 (Sept. 28, 1929). —Mineral fibers in aqueous suspension are admixed with aqueous dispersions of a plastic binding material, *e.g.*, rubber, so that, after filtering, the consolidated material contains at least 20% mineral fibers and 5% binding material and is of such consistency that the waste from stamping or cutting can be mixed with the original unfiltered material for reuse.—A. P.-C.

Rice Paper: An Ancient Chinese Contribution to Civilization. H. Gordon Thompson. Paper Maker & Brit. Paper Trade J. 84; 67-74 (Annual No., 1932).—A brief and profusely illustrated description.—A. P.-C.

Fibre Board Manufacture and Apparatus Therefor. Francis S. Farley assignor to Daniel M. Sutherland, Jr. U. S. pat. 1,903,102 (March 28, 1933).—In the manufacture of boards which are dried in a multi-plate heated press, before charging into the press the sheets are passed through a roll type of air drier to effect a superficial drying (which brings the total moisture content down to about 30 to 50%). The boards are then much more easily handled when charging into the press.—A. P.-C.

Container Board Suitable for Use in Packaging Greasy Materials. Joseph H. Swan assignor to The Gardner-Richardson Co. U. S. pat. 1,895,527 (Jan. 31, 1933).—A laminated sheet is made up of paper plies with an intermediate asphalt layer and the surface of the material which is to form the interior of the container is provided with a non-fibrous grease-proofing coating such as one formed from sodium silicate, glycerine, water and soda ash.—A. P.-C.

Machine for Pasting Webs of Paper Together. Joseph A. Lowe assignor to Falulah Paper Co. U. S. pat. 1,902,713 (March 21, 1933).—Instead of finishing (by super-calendering or plating) the built up sheet after pasting, the outer sides are finished before pasting. A new machine is provided for carrying out the process.—A. P.-C.

Stencil Paper. Kenneth W. Carr assignor to Ditto, Inc. U. S. pat. 1,894,731 (Jan. 17, 1933).—A coating is employed having as a base a synthetic resin of the phenol-condensation type which has completely reacted and is incapable of polymerization.—A. P.-C.

Machine for Producing Gummed Web. Albert S. Webster assignor to American Bank Note Co. U. S. pat. 1,899,655 (Feb. 28, 1933).—In order to prevent curling when a web of gummed paper is cut into sheets, the previously gummed and wound web is unwound and subjected to the action of two breaker blades set obliquely to the line of travel of the web, the two blades being oppositely inclined.—A. P.-C.

Method of and Means for Measuring Material Taken Up by a Coated or Impregnated Web. Albert Allen assignor to Atlantic Precision Instrument Co. U. S. pat. 1,895,118 (Jan. 24, 1933).—The untreated sheet is passed between the plates of an electrical condenser, and after treating is passed between the plates of a similar condenser. The capacities of the two condensers are read by suitable means in terms of the running weight of the sheet, and as one represents the total weight and the other weight of the base, the difference gives the weight of the treating material.—A. P.-C.

Grease-Resistant Paper. Theodore F. Bradley. U. S. pat. 1,896,215 (Feb. 7, 1933).—A glassine paper carries a coating including a cellulose ester such as cellulose nitrate, a wax such as paraffin in an amount sufficient substantially to reduce volatility of solvents of the composition but insufficient to cause blemishing of the coating, and a polyhydric alcohol-polybasic acid resin. Various other auxiliary and modifying ingredients may also be added.—A. P.-C.

Waterproof Roofing Material. Max E. Campbell assignor to The Flintkote Co. U. S. pat. 1,894,754 (Jan. 17, 1933).—Overlapping sheets of fibrous felted material are used having upon at least a portion of their surfaces a finely divided substance such as slaked lime capable of reacting with saponified material and upon which bituminous emulsion is spread.—A. P.-C.

Fibrous Product and Method of Making Same. Max H. Kliefoth assignor to C. F. Burgess Laboratories, Inc. U. S. pat. 1,875,018 (Aug. 30, 1932).—Dry fibrous material and a binding agent (such as coal-tar pitch, asphalt, rosin, waxes, etc.) are mixed in a shredder which pulverizes the binder and shreds the fibrous material, the operation being conducted under such conditions that the fine particles of binder become attached to the fibers and are not readily separated therefrom in the course of subsequent operations. The mixture of fiber and binder is suspended in water and sheeted on a fourdrinier or cylinder paper machine.—A. P.-C.

Felted Fibrous Composition. Earl P. Stevenson and Harry A. Buron assignors to The Richardson Co. U. S.

pat. 1,878,300 (Sept. 20, 1932).—Short-fibered asbestos is mixed with asphalt in the presence of water in a mixer at a sufficiently high temperature to maintain the asphalt non-solid. More water is added, the mixture is transferred to a hollander and long-fibered asbestos is added. The beaten mixture is made into a sheet on a paper machine.—A. P.-C.

Waterproofing Paper. George J. Manson assignor to Manson Chemical Co. U. S. pats. 1,894,566 and 1,894,567 (Jan. 17, 1933).—*No. 1,894,566.*—A water-repellent substance such as montan wax is encased with a precipitate formed by double decomposition (as by the reaction of sodium carbonate with magnesium chloride) while the water-repellent substance is dispersed, and the dispersion mixture is introduced into the stock from which the paper is made. *No. 1,894,567* relates to fibrous products such as paper or fiberboard made from a pulp carrying a dispersion of gel-encysted water-repellent substance, such as montan wax encysted with a gel formed from sodium silicate and magnesium sulphate.—A. P.-C.

Waterproofing Paper. George J. Manson assignor to Manson Chemical Co. U. S. pat. 1,984,959 (Jan. 24, 1933).—A water-resistant substance such as montan wax or paraffin is encased with a gel formed by double decomposition (as by the reaction of sodium silicate and magnesium sulphate) while the water-repellent substance is dispersed, and the dispersion is introduced into the paper stock.—A. P.-C.

Duplex Roll of Corrugated Paper. Bernard Rous. U. S. pat. 1,902,312 (March 21, 1933).—Two sheets of paper are brought together and corrugated simultaneously, a single facing sheet is applied to each corrugated sheet without separating them, and the two are then wound together into a single roll. Two single sheets of single-faced corrugated paper are thus wound into a single roll occupying practically the same place as a roll consisting of but one single-faced corrugated sheet.—A. P.-C.

Manufacture of Leather Substitute. Ernest Hopkinson assignor to The Naugatuck Chemical Co. U. S. pat. 1,897,479 (Feb. 14, 1933).—An aqueous suspension of pulp containing a latex or rubber dispersion is atomized by means of steam or hot air between the bight of two pairs of rolls. An endless wire screen is trained around the two upper rolls, and another screen around the two lower rolls. It is claimed that the layer formation obtained with ordinary paper machines is avoided, the fibers being intermingled and matted in all directions and resistance to abrasion being considerably increased.—A. P.-C.

Indurated Cellulose Products. Duncalf W. Hollingsworth and Lester W. Tarr assignors to Continental-Diamond Fibre Co. U. S. pat. 1,894,907 (Jan. 17, 1933).—An absorbent paper sheet is subjected to the action of a bath comprising phosphoric, sulphuric and acetic acids, to form a product which has the general properties of vulcanized fiber and is thermoplastic.—A. P.-C.

Power

High Voltage Electrode Boilers and the Utilization of Ostland's Excess Power in the Wood Converting Industry. Papir-J. 21, No. 6:51-54; No. 7:62-64; No. 8: 72-74; No. 9:83-85 (Apr. 6, 15, May 3, 15, 1933).—Description of different types of electric steam generators in Europe and America. An example from the Norwegian province Ostland is given; all electric power plants in this province are hooked up together and the excess power is sold to the pulp and paper mills. These mills could absorb all surplus power, which would only replace about 16% of their annual coal consumption. Different calculations are included in the article.—C. J. W.

Steam and Power in the Bleached-Sulphite Pulp Mill. Trans. Am. Soc. Mech. Eng., Fuel Steam Power 55, No. 3:59-61 (1933).—Methods of effecting economies in the use of steam in the paper industry are given, together with possibilities of water saving. A table is given of the probable requirements in steam and power of a 150-ton sulphite mill. The possibility of combining the operations of a sawmill and a pulp mill is reviewed.—C. J. W.

Original and Maintenance Costs of Steam Boilers. E. Praetorius. Svensk Pappers-Tidn. 36, No. 3:70, 73-74 (Feb. 15, 1933).—The cost of various types of installations are compared and discussed.—C. J. W.

Electrical Equipment for Ostrand's Wood Pulp Mill, Sweden. A. Engström. A.S.E.A. (Allmanna Svenska Elek. A. B.) Journal 9:66-80 (1932); Science Abstracts 35B:530-531.—The Ostrand sulphate mill is the largest in Sweden and can now produce 75,000 tons of pulp per annum. A portion of the electric supply is purchased and is supplied through a substation containing one 1200 kVA transformer stepping down from 40 to 6 kV. The major portion of the energy is generated at the works by a 10,000 kVA, 6 kV turbo-alternator. Individual drives are employed where possible and there are over 400 motors, all of weather-proof design and operating on 500 V. Squirrel-cage motors are used up to 5 h. p. and in the case of centrifugal pumps and fans up to 40 h.p. Other machines are of the slip-ring type with short circuit and brush-lifting gear. The process is briefly described and reference is made to several of the individual driving arrangements. Helical reduction gears have been extensively employed.—C. J. W.

Water Circulation and Steam Boiler Construction. Zellstoff Papier 13, No. 4: 161-65 (April, 1933).—J. F. O.

Progress in the Construction of Boilers. Papier-Fabr. 31, No. 19: 286-87 (May 7, 1933).—Present conditions have made it necessary to look for increased economy in boiler construction. Improvements introduced by Firma F. L. Oschatz are discussed.—J. F. O.

Progress in the Field of Power and Heat Economics. Von Lassberg. Papier-Fabr. 30, No. 50: 722 (Dec. 11, 1932).—Discussion of high pressure boilers of various makes, new ideas in turbine design and the feasibility of adopting these in paper and pulp mills.—J. F. O.

The Preparation of Boiler Feed Water. Experiences with a Lime Soda Installation. Alfred Halward. Papier-Fabr. 31, No. 6: 65-66; No. 7: 77-80 (Feb. 5, 12, 1933).—There are three principal methods for the treatment of raw water: viz., the distillation process, the chemical process and the chemical-thermal process. The first method is uneconomical. The second method includes such processes as the use of Zeolite, but a high alkalinity results from the use of these chemicals and hence unsuited for boilers. In the third method 40 to 50 per cent of the earth alkali bicarbonate is decomposed into carbonates and carbon dioxide by heating. The author describes in detail procedure for the chemical thermal method using lime soda.—J. F. O.

The Latest Experience in Feed Water Preparation and the Prevention of Boiler Scale with Tri-sodium Phosphate. P. Koppel. Papier-Fabr. 31, No. 2; 20-21 (Jan. 8, 1933); Wochbl. Papierfabr. 64, No. 1: 5-6 (Jan. 7, 1933).—The tri-sodium phosphate process is divide into three parts, the first, the thermal stage, the water is heated in a cascade preheater and simultaneously removing the gases, the second stage is the partial removal of the hardness by the alkaline return boiler water and in the third stage, the complete removal of the hardness by tri-sodium phosphate. A zero hardness is obtained besides a filtration of the water, thus removing the materials in suspension, oil and iron.—J. F. O.

Significant Sheet Properties For Developing Specifications For Various Papers And Paperboards*

By P. K. Baird[1]

Abstract

An analysis of a survey on the use requirements of papers as expressed in sheet properties indicated:

1. The specific properties considered of importance in setting proximate specifications for each class and grade of paper.

2. The order of importance or rating for each of the selected properties for each grade and class.

3. The grand order of importance or rating for each property as related to papers and paperboards (all classes as a group).

This report is an analytical summary of the returns from a questionnaire on the use requirements of papers and paperboards issued by the Technical Association of the Pulp and Paper Industry and the Forest Products Laboratory and sent to the manufacturers of these products. It is a reflection of the necessary properties as required by the users of paper and paperboard tempered with the point of view and experience of the manufacturers. In view of the present fragmentary knowledge of the significance of the various sheet properties relative to use, it is perhaps the most accurate source of these fundamental data available. Nothing better can be had except by direct use analysis.

The objectives of the Committee on Use Requirements of the Technical Association of the Pulp and Paper Industry are: (1) To delineate the general sheet properties of papers, (2) to determine these properties in order of importance for each kind of paper and paper board, (3) to select (or to request development of by the proper committee, where not now available) a standard test method for each property, and (4) to set maximum and minimum values for each property for each specified paper, after having established approximate commercial values.

In compliance with the second objective of the research program of this committee, the writer as chairman of the committee, issued and received the returns of a questionnaire on the use analysis for 54 sheet properties as applied to about 100 grades of papers made in the United States and Canada. This report recommends action as to the proper order in which methods should be developed or perfected for use in writing specifications.

Method of Attack

The following steps were taken in this study:

(1) A questionnaire, with instructions covering the 54 selected properties was circulated and the respondents were asked to rate these properties in order of importance for each of their products; (2) returns were classified as to classes and grades according to the outline given in "Classification and Definitions of Paper" 1928, p. 7, published by the Lockwood Trade Journal Company, Inc., New York; (3) arbitrary values for unrated properties[2] (respondents were asked to rate only those properties considered important in their product) were assigned, and the statistical means and ratings were selected for each grade; (4) all classes of papers were summarized for a grand rating for each property, pointing out the order of importance for the fifty-four fundamental and empirical sheet properties considered.

TABLE I
ABSORBENT PAPER CLASS

Grade ratings				Class		
Filter	Blotting	Towel	Properties	Total	Average	Rating
9	6	..	Thickness	29	9.7	15
3	5	..	Apparent density	22	7.3	3
..	..	7	Bulk	30	10.0	17
..	..	..	Footage	..	...	..
..	..	11	Sheetage	34	11.3	22
..	7	9	Ream weight	27	9.0	9
8	..	12	Formation	32	10.7	20
..	..	5	Color	28	9.3	12
..	..	10	Finish	33	11.0	21
..	..	..	Gloss	..	...	..
..	..	..	Two-sidedness	..	...	..
..	..	..	Opacity	..	...	..
7	8	13	Cleanliness	28	9.3	13
..	..	2	Tensile strength	25	8.3	6
6	..	..	Tearing strength	32	10.7	19
..	10	3	Bursting strength	24	8.0	5
5	..	..	Folding strength	31	10.3	18
..	..	..	Bending strength	..	...	..
..	..	..	Elongation at rupture	..	...	..
4	..	4	Wet strength	20	6.7	2
..	..	..	( ) strength	..	...	..
..	..	..	Elastic properties	..	...	..
..	..	..	Moisture content	..	...	..
..	..	1	Water absorbency	24	8.0	4
..	..	..	Oil absorbency	..	...	..
..	4	..	Writing ink absorbency	29	9.7	14
..	11	..	Printing ink absorbency	36	12.0	23
..	..	..	Blood or fat absorbency	..	...	..
..	..	..	( ) absorbency	..	...	..
10	9	8	Water penetration	27	9.0	10
..	..	..	Turpentine penetration	..	...	..
..	2	..	Writing ink penetration	27	9.0	8
..	..	..	Printing ink penetration	..	...	..
..	..	..	Water vapor penetration	..	...	..
..	..	..	( ) Vapor penetration.	..	...	..
..	1	..	Ink wetability	26	8.7	7
1	3	..	Porosity	18	6.0	1
..	..	..	Air resistance	..	...	..
..	..	..	Expansion (temperature)	..	...	..
..	..	..	Expansion (moisture)	..	...	..
..	..	..	Curl	..	...	..
..	..	..	Lignin content	..	...	..
..	..	..	Alpha cellulose	..	...	..
2	..	..	Ash content	28	9.3	11
..	..	..	Sized	..	...	..
..	..	..	Filled	..	...	..
..	..	..	Coated	..	...	..
..	..	..	Permanence	..	...	..
..	..	..	Electrical resistance	..	...	..
..	..	..	Heat insulation	..	...	..
..	..	..	Odor	..	...	..
..	..	..	Anti-tarnish	..	...	..
..	..	..	Erasure resistance	..	...	..
..	..	6	Hardness	29	9.7	16

Results

Returns were received from about 25 per cent of the mills solicited, which is considered a good return and should be an excellent sample of the universe to be studied in the simple statistical manner set forth here. These results are confined to the relative ratings for each class and grade of paper covered in the survey.

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[2] The rating value for all properties not reported by a respondent for any grade but reported by other respondents was arbitrarily set at the next higher numerical value above the highest reported by that respondent. This is not a precise method for getting the average above the lowest high rating for the class and it affects principally the properties of less importance. Exact values could only be obtained where all respondents rated all properties on all grades.

The classes of papers analyzed, the number of properties rated out of the total, and the corresponding table numbers showing detailed rating follow:

Class of paper	Properties rated, No.	Table No.
Absorbent	23	1
Boards	42	2
Building	25	3
Cardboard	27	4
Cover	17	5
News	31	6
Printing	36	7
Tissue	26	8
Wrapping	33	9
Bag	23	10
Writing	34	11
Specialties	34	12

TABLE III.—BUILDING PAPER CLASS

Grade ratings: Floor lining felt	Lin-oleum lining felt	Insulat-ing board (heat)	Sheath-ing	Roofing felt	Properties	Class: Total	Aver-age	Rat-ing
6	6	3	7	4	Thickness	26	5.2	3
..	..	2	..	10	Apparent density	46	9.2	13
..	..	..	..	15	Bulk	54	10.8	18
7	7	..	2	5	Footage	26	5.2	2
..	..	..	..	..	Sheetage	..	..	..
8	5	..	5	12	Ream weight	35	7.0	7
4	9	..	..	9	Formation	37	7.4	9
..	10	..	6	..	Color	55	11.0	19
2	8	..	4	11	Finish	30	6.0	5
..	..	..	..	..	Gloss	..	..	..
..	..	..	..	18	Two-sidedness	57	11.4	22
..	..	..	..	..	Opacity	..	..	..
..	..	..	..	..	Cleanliness	..	..	..
9	4	..	..	8	Tensile strength	36	7.2	8
..	..	..	..	13	Tearing strength	52	10.4	16
3	3	..	3	1	Bursting strength	15	3.0	1
..	..	..	..	..	Folding strength	..	..	..
1	..	..	..	2	Bending strength	29	5.8	4
..	..	..	..	..	Elongation at rupture	..	..	..
..	..	..	..	..	Wet strength	..	..	..
..	2	..	..	..	(Vertical) strength	51	10.2	15
..	..	..	..	..	Elastic properties	..	..	..
10	..	4	9	7	Moisture content	41	8.2	10
..	..	1	..	..	Water absorbency	56	11.2	20
..	..	..	1	3	Oil absorbency	33	6.6	6
..	..	..	..	..	Writing ink absorbency	..	..	..
..	..	..	..	..	Printing ink absorbency	..	..	..
..	..	..	..	..	Blood or fat absorbency	..	..	..
12	..	..	..	16	(Asphalt) absorbency	54	10.8	17
..	1	..	..	..	Water penetration	50	10.0	14
..	..	..	..	..	Turpentine penetration	..	..	..
..	..	..	..	..	Writing ink penetration	..	..	..
..	..	..	..	..	Printing ink penetration	..	..	..
..	..	..	..	..	Water vapor penetration	..	..	..
..	..	..	..	..	( ) vapor penetration	..	..	..
..	..	..	..	..	Ink wetability	..	..	..
11	..	..	..	6	Porosity	43	8.6	11
..	..	..	..	..	Air resistance	..	..	..
..	..	..	..	..	Expansion (temperature)	..	..	..
..	..	..	..	..	Expansion (moisture)	..	..	..
5	..	..	..	14	Curl	45	9.0	12
..	..	..	..	..	Lignin content	..	..	..
..	..	..	..	..	Alpha cellulose	..	..	..
..	..	..	..	19	Ash content	58	11.6	24
..	..	..	..	8	Sized	58	11.6	23
..	..	..	..	..	Filled	..	..	..
..	..	..	..	..	Coated	..	..	..
..	..	..	..	17	Permanence	56	11.2	21
..	..	..	..	..	Electrical resistance	..	..	..
..	..	..	..	20	Heat insulation	59	11.8	25
..	..	..	..	..	Odor	..	..	..
..	..	..	..	..	Anti-tarnish	..	..	..
..	..	..	..	..	Erasure resistance	..	..	..
..	..	..	..	..	Hardness	..	..	..

TABLE II.—PAPERBOARD CLASS

Class ratings: White waxing cup	Mill blank	Can body	Oyster pail	Single news vat lined chip board	B.S.L. manila board	Strawboard	Anti-tarnish box	Packing board	Tubing	Test board	White pat. coated news	Wallboard	Solid news board	Manila-lined chip board	Liners	Folding box board	Corrugating board	Plain chip board	Properties	Class: Total	Average	Rating
..	1	1	3	1	1	3	2	..	1	8	4	4	3	4	2	2	1	1	Thickness	48	2.5	1
..	..	..	..	..	3	..	..	1	..	..	..	1	..	..	13	15	5	13	Apparent density	185	9.7	12
..	4	..	..	..	..	..	..	..	..	..	16	13	..	..	12	..	11	7	Bulk	199	10.5	15
..	..	..	..	..	..	2	..	..	..	2	..	9	..	..	8	..	..	14	Footage	202	10.6	17
..	..	..	..	3	..	..	..	2	..	..	14	..	3	2	..	4	10	2	Sheetage	183	9.6	11
5	..	..	..	..	2	..	3	..	..	..	9	..	..	..	6	..	3	..	Ream weight	197	10.4	13
6	..	..	12	5	..	..	..	3	5	6	5	22	6	8	18	11	6	15	Formation	172	9.1	9
7	2	..	4	7	9	..	4	..	..	3	1	20	9	1	7	3	..	5	Color	126	6.6	4
2	5	3	11	6	8	..	..	..	6	5	3	17	5	3	3	6	8	3	Finish	108	5.7	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Gloss	..	..	..
..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	Two-sidedness	256	13.5	36
11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Opacity	259	13.6	40
1	3	7	..	2	4	..	..	..	2	7	2	23	1	6	11	5	15	4	Cleanliness	120	6.3	3
..	..	4	..	..	..	..	..	..	..	10	..	12	..	..	20	12	..	19	Tensile strength	221	11.6	19
8	..	5	5	4	..	..	..	..	..	9	17	..	4	10	10	8	4	10	Tearing strength	168	8.8	6
9	..	6	6	..	..	4	..	..	..	1	..	7	..	..	1	..	14	18	Bursting strength	181	9.5	10
10	..	..	2	..	..	..	..	..	..	4	6	..	..	5	15	1	..	8	Folding strength	172	9.1	8
..	..	..	..	..	5	..	..	..	3	..	7	2	..	7	4	7	7	12	Bending strength	148	7.8	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Elongation at rupture	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24	..	..	..	Wet strength	259	13.6	41
..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	9	..	(Crushing) strength	248	13.1	31
..	6	..	10	..	6	..	..	..	..	..	..	21	..	..	14	10	2	17	Elastic properties	199	10.5	14
..	11	8	7	9	..	..	..	..	7	..	10	3	7	12	9	9	16	11	Moisture content	170	8.9	7
..	7	..	..	..	10	..	..	..	..	..	..	..	..	..	23	..	12	..	Water absorbency	246	12.9	29
..	..	..	..	..	..	..	..	..	..	..	..	18	..	..	..	..	..	..	Oil absorbency	250	13.2	34
..	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Writing ink absorbency	256	13.5	37
..	9	..	..	..	7	..	..	..	..	..	12	..	..	14	17	16	..	..	Printing ink absorbency	232	12.2	23
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Blood or fat absorbency	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	( ) absorbency	..	..	..
..	..	2	1	..	..	..	..	..	..	..	..	16	..	..	5	..	..	16	Water penetration	202	10.6	16
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Turpentine penetration	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	15	..	..	..	..	..	..	Writing ink penetration	247	13.0	30
..	..	..	..	..	..	..	..	..	..	..	15	14	..	9	19	..	..	20	Printing ink penetration	226	11.9	21
..	..	..	..	..	..	..	..	..	..	..	..	8	..	..	..	..	..	..	Water vapor penetration	240	12.6	26
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	( ) vapor penetration	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Ink wetability	..	..	..
4	..	..	9	..	..	..	..	..	..	..	..	..	..	..	..	..	13	..	Porosity	244	12.8	28
..	..	..	..	..	..	..	..	..	..	..	..	11	..	..	..	..	..	..	Air resistance	243	12.8	27
..	..	..	..	..	..	..	..	..	..	..	..	25	..	..	..	..	..	..	Expansion (temperature)	257	13.5	39
..	..	..	..	..	..	..	..	..	..	..	11	5	..	..	..	..	..	..	Expansion (moisture)	228	12.0	22
..	10	..	..	8	..	..	..	..	..	..	8	26	8	11	21	13	..	9	Curl	213	11.2	18
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Lignin content	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Alpha cellulose	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Ash content	..	..	..
..	..	..	..	..	..	..	..	..	..	11	13	10	..	..	16	17	..	..	Sized	223	11.7	20
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Filled	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Coated	..	..	..
..	..	..	..	..	..	..	..	..	..	12	19	19	..	..	..	..	..	..	Permanence	249	13.1	33
..	..	..	..	..	..	..	..	..	..	..	..	27	..	..	..	..	..	..	Electrical resistance	259	13.6	42
..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..	..	..	..	Heat insulation	238	12.5	25
..	..	9	8	..	11	..	..	..	..	..	18	..	..	15	..	..	..	21	Odor	249	13.1	32
..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	Anti-tarnish	256	13.5	35
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	22	..	..	..	Erasure resistance	257	13.5	38
..	..	..	..	..	..	..	..	..	..	..	..	24	..	13	..	14	..	6	Hardness	233	12.3	24

TABLE IV.—CARDBOARD CLASS

Grade ratings: Stencil	Playing card	Folding bristol	Mill bristol	Post card	Index bristol	Tag	Properties	Class: Total	Average	Rating
3	3	2	1	3	7	1	Thickness	20	2.9	2
4	..	..	..	..	..	9	Apparent density	82	11.7	19
..	2	..	..	..	8	..	Bulk	67	9.6	10
..	..	..	..	..	..	..	Footage	..	...	..
..	..	..	..	..	..	..	Sheetage	..	...	..
..	17	4	3	4	4	4	Ream weight	42	6.0	4
..	16	..	..	..	2	5	Formation	64	9.1	7
..	4	3	2	7	6	12	Color	40	5.7	3
2	1	5	4	2	1	3	Finish	18	2.6	1
..	..	..	..	..	..	..	Gloss	78	11.1	16
..	7	..	..	..	3	..	Two-sideness	67	9.6	11
..	6	..	..	..	..	..	Opacity	79	11.3	17
..	8	..	5	5	..	15	Cleanliness	62	8.9	6
..	..	..	..	..	12	..	Tensile strength	87	12.4	24
..	..	9	10	..	10	2	Tearing strength	66	9.4	8
..	9	8	6	8	5	6	Bursting strength	48	6.9	5
..	..	1	..	..	13	7	Folding strength	68	9.7	12
..	10	..	..	..	9	..	Bending strength	76	10.9	15
..	..	..	..	..	..	..	Elongation at rupture	..	...	..
..	..	..	..	..	..	..	Wet strength	..	...	..
..	..	..	..	..	..	..	( ) strength	..	...	..
..	..	10	11	6	..	8	Elastic properties	75	10.7	14
..	..	11	9	9	..	10	Moisture content	79	11.3	18
..	..	..	..	..	..	..	Water absorbency	..	...	..
..	..	..	..	..	..	..	Oil absorbency	..	...	..
..	..	7	8	1	..	11	Writing ink absorbency	67	9.6	9
..	11	6	7	..	..	13	Printing ink absorbency	70	10.0	13
..	..	..	..	..	..	..	Blood or fat absorbency	..	...	..
..	..	..	..	..	..	..	( ) absorbency	..	...	..
1	..	..	..	..	..	14	Water penetration	84	12.0	20
..	..	..	..	..	..	..	Turpentine penetration	..	...	..
..	..	..	..	..	..	..	Writing ink penetration	..	...	..
5	12	..	..	..	..	..	Printing ink penetration	84	12.0	21
..	..	..	..	..	..	..	Water vapor penetration	..	...	..
..	..	..	..	..	..	..	( ) vapor penetration	..	...	..
..	..	..	..	..	..	..	Ink wetability	..	...	..
..	..	..	..	..	..	..	Porosity	..	...	..
..	..	..	..	..	..	..	Air resistance	..	...	..
..	..	..	..	..	..	..	Expansion (temperature)	..	...	..
..	..	..	..	..	..	..	Expansion (moisture)	..	...	..
..	13	..	..	..	..	..	Curl	86	12.3	23
..	..	..	..	..	..	..	Lignin content	..	...	..
..	..	..	..	..	..	..	Alpha cellulose	..	...	..
..	..	..	..	..	..	..	Ash content	..	...	..
..	14	..	..	..	14	..	Sized	85	12.1	22
..	..	..	..	..	..	..	Filled	..	...	..
..	..	..	..	..	..	..	Coated	88	12.6	25
..	..	..	..	..	15	..	Permanence	90	12.9	27
..	..	..	..	..	..	..	Electrical resistance	..	...	..
..	..	..	..	..	..	..	Heat Insulation	..	...	..
..	..	..	..	..	..	..	Odor	..	...	..
..	..	..	..	..	..	..	Anti-tarnish	..	...	..
..	..	..	..	10	..	..	Erasure resistance	90	12.9	26
..	..	..	..	..	..	..	Hardness	..	...	..

TABLE V.—COVER PAPER CLASS

Grade ratings: Uncoated	Coated	Properties	Class: Total	Average	Rating
6	..	Thickness	17	8.5	7
..	..	Apparent density	..	...	..
9	..	Bulk	20	10.0	11
..	..	Footage	..	...	..
..	..	Sheetage	..	...	..
3	3	Ream weight	6	3.0	3
10	8	Formation	18	9.0	8
1	4	Color	5	2.5	1
2	5	Finish	7	3.5	4
..	..	Gloss	..	...	..
12	7	Two-sidedness	19	9.5	9
..	..	Opacity	..	...	..
..	6	Cleanliness	21	10.5	12
14	..	Tensile strength	25	12.5	17
8	..	Tearing strength	19	9.5	10
7	2	Bursting strength	9	4.5	5
4	1	Folding strength	5	2.5	2
13	..	Bending strength	24	12.0	15
..	..	Elongation at rupture	..	...	..
..	..	Wet strength	..	...	..
..	..	( ) strength	..	...	..
..	..	Elastic properties	..	...	..
..	10	Moisture content	25	12.5	16
..	..	Water absorbency	..	...	..
..	..	Oil absorbency	..	...	..
..	..	Writing ink absorbency	..	...	..
11	..	Printing ink absorbency	22	11.0	13
..	..	Blood or fat absorbency	..	...	..
..	..	( ) absorbency	..	...	..
..	..	Water penetration	..	...	..
..	..	Turpentine penetration	..	...	..
..	..	Writing ink penetration	..	...	..
..	..	Printing ink penetration	..	...	..
..	..	Water vapor penetration	..	...	..
..	..	( ) vapor penetration	..	...	..
..	..	Ink wetability	..	...	..
..	..	Porosity	..	...	..
..	..	Air resistance	..	...	..
..	..	Expansion temperature	..	...	..
..	..	Expansion (moisture)	..	...	..
..	..	Curl	..	...	..
..	..	Lignin content	..	...	..

TABLE V.—COVER PAPER CLASS—*Continued*

..	..	Alpha cellulose	..	...	..
..	9	Ash content	24	12.0	14
..	..	Sized	..	...	..
..	..	Filled	..	...	..
..	..	Coated	..	...	..
..	..	Permanence	..	...	..
..	..	Electrical resistance	..	...	..
..	..	Heat insulation	..	...	..
..	..	Odor	..	...	..
..	..	Anti-tarnish	..	...	..
5	..	Hardness	16	8.0	6

TABLE VI.—NEWS CLASS

Grade rating: Standard newsprint	Tablet	Halftone	Novel	Poster	Wall or hanging	Catalog	Properties	Class: Total	Average	Rating
10	6	..	..	..	..	..	Thickness	73	10.4	15
26	..	..	..	..	..	8	Apparent density	82	11.7	18
17	5	..	1	..	5	..	Bulk	66	9.4	10
16	..	..	..	..	..	..	Footage	85	12.1	23
..	..	..	..	..	..	..	Sheetage	..	...	..
6	9	4	5	5	2	16	Ream weight	47	6.7	5
2	11	1	6	..	6	6	Formation	38	5.4	2
3	2	2	2	1	1	4	Color	15	2.1	1
1	..	3	..	2	..	5	Finish	42	6.0	3
13	..	..	..	..	..	10	Gloss	71	10.1	13
14	..	..	8	..	9	..	Two-sidedness	81	11.6	17
8	..	..	..	..	..	3	Opacity	59	8.4	9
4	8	5	7	4	4	13	Cleanliness	45	6.4	4
7	..	..	..	..	..	18	Tensile strength	73	10.4	16
20	..	..	..	..	..	15	Tearing strength	83	11.9	19
5	10	6	4	3	7	14	Bursting strength	49	7.0	6
21	..	..	3	..	..	..	Folding strength	84	12.0	20
..	..	..	..	..	..	..	Bending strength	..	...	..
22	..	..	..	..	..	..	Elongation at rupture	91	13.0	29
..	..	..	..	..	..	..	Wet strength	..	...	..
..	..	..	..	..	..	..	( ) strength	..	...	..
..	..	..	..	..	..	..	Elastic properties	..	...	..
12	1	..	..	..	8	..	Moisture content	68	9.7	11
..	..	..	..	..	..	..	Water absorbency	..	...	..
..	..	..	..	..	..	..	Oil absorbency	..	...	..
..	..	..	..	..	..	11	Writing ink absorbency	86	12.3	24
11	..	7	..	..	..	1	Printing ink absorbency	56	8.0	7
..	..	..	..	..	..	..	Blood or fat absorbency	..	...	..
..	..	..	..	..	..	..	( ) absorbency	..	...	..
..	..	..	..	..	..	..	Water penetration	89	12.7	28
..	4	..	..	..	..	..	Turpentine penetration	88	12.6	27
..	..	..	..	..	..	17	Writing ink penetration	92	13.1	30
9	..	8	..	..	..	2	Printing ink penetration	56	8.0	8
..	..	..	..	..	..	..	Water vapor penetration	..	...	..
..	..	..	..	..	..	..	( )vapor penetration	..	...	..
15	..	..	..	..	..	9	Ink wetability	72	10.3	14
18	..	9	..	..	..	7	Porosity	71	10.1	12
25	3	..	..	..	..	..	Air resistance	85	12.1	21
..	..	..	..	..	..	..	Expansion (temperature)	..	...	..
..	..	..	..	..	..	..	Expansion (moisture)	..	...	..
24	..	..	..	..	..	..	Curl	93	13.3	31
..	..	..	..	..	..	12	Lignin content	87	12.4	26
..	..	..	..	..	..	..	Alpha cellulose	..	...	..
23	7	10	..	..	..	20	Ash content	85	12.1	22
..	..	..	..	..	..	..	Sized	..	...	..
..	..	..	..	..	..	..	Filled	..	...	..
..	..	..	..	..	..	..	Coated	..	...	..
..	..	..	..	..	..	..	Permanence	..	...	..
..	..	..	..	..	..	..	Electrical resistance	..	...	..
..	..	..	..	..	..	..	Heat insulation	..	...	..
..	..	..	..	..	..	..	Odor	..	...	..
..	..	..	..	..	..	..	Anti-tarnish	..	...	..
..	..	..	..	..	..	..	Erasure resistance	..	...	..
19	..	..	..	..	..	19	Hardness	86	12.3	25

TABLE VIII.—TISSUE PAPER CLASS

Grade ratings: Fruit wrapper	Napkin tissue	Wrapping tissue	Carbon tissue	Crepe tissue	Waxing tissue	Foil mounting	Toilet	Properties	Class: Total	Average	Rating
..	..	..	..	..	..	..	4	Thickness	79	9.9	14
..	..	..	..	..	..	..	..	Apparent density	..	...	..
..	..	..	..	..	..	..	6	Bulk	81	10.1	18
..	..	..	..	..	..	..	..	Footage	..	...	..
6	..	..	..	..	..	..	10	Sheetage	77	9.6	12
5	5	5	3	7	2	8	13	Ream weight	48	6.0	5
10	6	2	1	5	4	2	7	Formation	37	4.6	2
3	1	1	6	1	3	7	2	Color	24	3.0	1
8	2	4	5	4	5	6	8	Finish	42	5.2	4
..	3	..	..	3	..	9	..	Gloss	65	8.1	7
..	..	..	..	..	..	5	..	Opacity	80	10.0	16
11	4	..	8	6	..	12	12	Cleanliness	66	8.2	8
1	8	..	..	2	1	3	9	Tensile strength	39	4.9	3
7	..	..	..	..	..	..	..	Tearing strength	82	10.2	19
2	..	3	7	..	6	10	4	Bursting strength	57	7.1	6
..	..	..	..	..	..	..	..	Folding strength	..	...	..

TABLE VIII.—TISSUE PAPER CLASS—*Continued*

Grade Ratings								Properties	Class		
Fruit wrapper	Napkin tissue	Wrapping tissue	Carbon tissue	Crepe tissue	Waxing tissue	Foil mounting	Toilet		Total	Average	Rating
..	..	..	..	..	..	..	..	Bending strength	..	...	..
..	..	..	..	..	..	..	..	Elongation at rupture	..	...	..
..	..	..	..	..	..	..	11	Wet strength	86	10.8	23
..	..	..	..	..	..	..	..	( ) strength	..	...	..
..	..	..	..	..	..	..	..	Elastic properties	..	...	..
4	..	..	..	..	..	..	..	Moisture content	79	9.9	15
..	..	..	..	..	..	..	3	Water absorbency	78	9.8	13
9	..	..	..	..	..	..	..	Oil absorbency	84	10.5	22
..	..	..	..	..	..	..	..	Writing ink absorbency	..	...	..
12	..	..	..	..	..	..	..	Printing ink absorbency	87	10.9	26
..	..	..	..	..	..	..	..	Blood or fat absorbency	..	...	..
..	..	..	..	..	..	..	..	( ) absorbency	..	...	..
..	..	..	..	..	..	..	5	Water penetration	80	10.0	17
..	..	..	..	..	..	..	..	Turpentine penetration	..	...	..
..	..	..	..	..	..	..	..	Writing ink penetration	..	...	..
..	..	..	4	..	..	..	..	Printing ink penetration	84	10.5	21
..	..	..	..	..	..	..	..	Water vapor penetration	..	...	..
..	..	..	..	..	..	..	..	( ) vapor penetration	..	...	..
..	..	..	..	..	..	..	..	Ink wetability	..	...	..
..	..	..	..	..	..	..	..	Porosity	..	...	..
..	9	..	..	8	..	1	..	Air resistance	68	8.5	9
..	..	..	..	..	..	..	..	Expansion (temperature)	..	...	..
..	..	..	..	..	..	..	..	Expansion (moisture)	..	...	..
..	..	..	..	..	..	11	..	Curl	86	10.8	24
..	..	..	..	..	..	..	..	Lignin content	..	...	..
..	12	..	..	11	..	..	..	Alpha cellulose	87	10.9	25
..	..	..	..	..	..	..	..	Ash content	..	...	..
..	7	..	2	9	..	13	..	Sized	72	9.0	10
..	..	..	..	..	..	..	..	Filled	..	...	..
..	..	..	..	..	..	..	..	Coated	..	...	..
13	10	..	..	10	..	..	..	Permanence	83	10.4	20
..	..	..	..	..	..	..	..	Electrical resistance	..	...	..
..	..	..	..	..	..	..	..	Heat insulation	..	...	..
..	..	..	..	..	..	..	..	Odor	..	...	..
..	..	..	..	..	..	..	..	Anti-tarnish	..	...	..
..	..	..	..	..	..	..	..	Erasure resistance	..	...	..
..	11	..	..	..	..	..	1	Hardness	74	9.2	11

TABLE X.—BAG PAPER CLASS

Grade rating					Properties	Class		
Flour sacks (kraft)	Kraft flour container	Flour sacks (rope)	Kraft	Cement		Total	Average	Rating
..	..	..	..	..	Thickness	..	...	..
..	..	..	13	..	Apparent density	80	16.0	22
..	9	..	8	5	Bulk	56	11.2	9
..	..	..	..	..	Footage	..	...	..
..	..	..	..	..	Sheetage	..	...	..
9	7	9	1	6	Ream weight	32	6.4	4
15	10	15	5	13	Formation	58	11.6	11
6	..	6	14	7	Color	46	9.2	8
11	..	11	12	15	Finish	62	12.4	14
12	..	12	..	..	Gloss	74	14.8	18
..	..	..	..	..	Two-sidedness	..	...	..
..	..	..	..	..	Opacity	..	...	..
13	..	13	11	9	Cleanliness	59	11.8	12
2	2	1	4	2	Tensile strength	11	2.2	2
3	3	2	2	1	Tearing strength	11	2.2	1
4	4	3	3	4	Bursting strength	18	3.6	3
5	5	4	10	10	Folding strength	34	6.8	5
..	..	..	..	..	Bending strength	..	...	..
16	6	16	7	11	Elongation at rupture	56	11.2	10
..	..	..	..	19	Wet strength	83	16.6	23
..	..	..	..	..	( ) strength	..	...	..
..	..	..	..	..	Elastic properties	..	...	..
..	..	..	6	8	Moisture content	61	12.2	13
..	..	..	..	..	Water absorbency	..	...	..
..	..	..	..	..	Oil absorbency	..	...	..
..	..	..	..	..	Writing ink absorbency	..	...	..
..	..	..	..	..	Printing ink absorbency	..	...	..
..	..	..	..	..	Blood or fat absorbency	..	...	..
..	..	..	..	..	( ) absorbency	..	...	..
..	..	..	9	12	Water penetration	68	13.6	16
..	..	..	..	..	Turpentine penetration	..	...	..
..	..	..	..	..	Writing ink penetration	..	...	..
..	..	..	..	..	Printing ink penetration	..	...	..
..	..	..	..	..	Water vapor penetration	..	...	..
..	..	..	..	..	( ) vapor penetration	..	...	..
..	..	..	..	..	Ink wetability	..	...	..

(Continued on page 44)

TABLE VII.—PRINT PAPER CLASS

Grade ratings												Properties	Class		
Litho-graph S.C.	Cata-log	Folding coating	Gum-ming S.C.	S.C. book	Mimeo-graph	English finish book	Order blank	No. 2 coated book	No. 1 coated book	Roto-gravure	Label	Offset book	M.F. book		Total	Average	Rating
9	2	18	..	..	..	..	..	..	..	..	..	17	13	Thickness	183	13.1	20
25	..	..	17	14	3	14	..	..	..	..	16	25	23	Apparent density	207	14.8	25
17	..	16	..	..	..	..	7	..	..	9	15	21	6	Bulk	176	12.6	15
..	..	..	..	..	..	..	..	..	..	..	..	..	..	Footage	..	...	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	Sheetage	..	...	..
26	3	19	..	..	..	..	8	..	..	4	10	22	9	Ream weight	177	12.6	16
4	..	6	14	2	2	6	..	..	..	6	17	5	3	Formation	98	7.0	3
2	..	4	4	5	..	3	9	..	..	2	12	6	5	Color	86	6.1	2
1	7	2	5	1	1	1	..	2	1	3	13	1	2	Finish	50	3.6	1
3	..	3	6	8	..	15	..	3	2	..	14	..	..	Gloss	156	11.1	11
18	6	8	..	6	..	4	..	..	..	..	..	15	15	Two-sidedness	165	11.8	13
14	5	7	15	3	6	2	2	..	..	5	..	7	1	Opacity	102	7.3	4
11	..	9	7	4	9	5	..	..	..	13	18	16	4	Cleanliness	129	9.2	7
13	..	..	3	..	..	..	..	..	..	7	19	23	..	Tensile strength	188	13.4	21
6	..	5	2	12	..	12	3	1	4	..	20	11	16	Tearing strength	129	9.2	6
29	..	..	..	..	..	..	6	..	..	1	7	26	24	Bursting strength	198	14.1	23
8	..	1	1	10	..	10	..	5	5	..	..	10	14	Folding strength	132	9.4	8
27	..	..	16	11	..	11	..	..	..	..	..	24	..	Bending strength	219	15.6	30
..	..	..	..	..	..	..	..	..	..	..	..	..	..	Elongation at rupture	..	...	..
28	..	..	13	..	..	..	..	..	..	..	..	14	26	Wet strength	214	15.3	28
..	..	..	..	..	..	..	..	..	..	..	..	..	..	( ) strength	..	...	..
30	..	..	18	..	..	..	..	..	..	..	..	20	..	Elastic properties	229	16.4	33
31	1	..	..	..	..	..	1	..	..	11	4	..	10	Moisture content	181	12.9	19
32	..	..	..	..	..	..	..	..	..	..	..	12	..	Water absorbency	225	16.1	32
..	..	..	..	..	..	..	..	..	..	..	..	..	..	Oil absorbency	..	...	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	Writing ink absorbency	..	...	..
7	..	10	..	..	10	..	..	6	6	12	11	9	11	Printing ink absorbency	152	10.9	10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	Blood or fat absorbency	..	...	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	( ) absorbency	..	...	..
12	..	..	10	..	..	..	..	..	..	..	..	13	20	Water penetration	188	13.4	22
..	..	..	..	..	..	..	..	..	..	..	..	..	..	Turpentine penetration	..	...	..
20	..	..	..	..	8	..	..	..	..	..	..	..	27	Writing ink penetration	224	16.0	31
5	4	11	19	9	4	7	..	..	..	10	3	4	7	Printing ink penetration	107	7.6	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	Water vapor penetration	..	...	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	( ) vapor penetration	..	...	..
..	..	..	..	..	7	..	..	..	..	..	..	..	..	Ink wetability	237	16.9	35
..	..	..	..	..	5	..	..	..	..	..	9	18	21	Porosity	207	14.8	26
15	..	..	..	..	..	..	..	..	..	..	5	..	19	Air resistance	198	14.1	24
19	..	..	11	..	..	..	..	..	..	..	..	..	..	Expansion (temperature)	218	15.6	29
10	..	..	12	..	..	..	..	..	..	..	..	2	22	Expansion (moisture)	179	12.8	18
16	..	..	..	7	..	9	..	..	..	15	8	3	17	Curl	159	11.4	12
..	..	..	..	..	..	..	..	..	..	..	..	..	..	Lignin content	..	...	..
..	..	12	..	..	..	..	..	..	..	..	..	..	..	Alpha cellulose	233	16.6	34
21	8	13	8	13	..	13	5	..	..	8	2	..	8	Ash content	151	10.8	9
24	..	14	..	..	..	..	4	..	..	14	1	19	18	Sized	179	12.8	17
..	..	..	..	..	..	..	..	..	..	..	..	..	..	Filled	..	...	..
22	..	15	..	..	..	..	..	..	..	..	6	..	..	Coated	210	15.0	27
..	..	..	..	..	..	..	..	..	..	..	..	..	25	Permanence	238	17.0	36
..	..	..	..	..	..	..	..	..	..	..	..	..	..	Electrical resistance	..	...	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	Heat insulation	..	...	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	Odor	..	...	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	Anti-tarnish	..	...	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	Erasure resistance	..	...	..
23	..	17	9	..	..	8	..	4	3	16	..	8	12	Hardness	166	11.9	14

TABLE X.—BAG PAPER CLASS—*Continued*

Grade rating						Class		
Flour sacks (kraft)	Kraft flour container	Flour sacks (rope)	Kraft	Cement	Properties	Total	Average	Rating
7	8	7	16	3	Porosity	41	8.2	7
..	..	..	..	..	Air resistance	..	...	..
..	..	..	..	..	Expansion (temperature)	..	...	..
..	..	..	..	..	Expansion (moisture)	..	...	..
..	..	..	15	14	Curl	76	15.2	20
..	..	..	..	..	Lignin content	..	...	..
..	..	..	..	..	Alpha cellulose	..	...	..
..	..	..	..	..	Ash content	..	...	..
..	11	..	..	16	Sized	78	15.6	21
..	..	..	..	..	Filled	..	...	..
8	..	8	..	..	Coated	66	13.2	15
14	12	14	..	18	Permanence	75	15.0	19
..	..	..	..	..	Electrical resistance	..	...	..
..	..	..	..	..	Heat insulation	..	...	..
10	..	10	..	..	Odor	70	14.0	17
..	..	..	..	..	Anti-tarnish	..	...	..
..	..	..	..	..	Erasure resistance	..	...	..
1	1	5	..	17	Hardness	41	8.2	6

For the present purposes, no weighting of averages for grades or classes has been attempted. At some future time it might be advisable to weight the various averages for a grade or class by any or all of several methods, such as tonnage, number of mills, number of significant properties controlled or number of respondents depending upon the particular purpose of the analysis. It is questionable, however, whether the conclusions for weighted averages would be greatly altered from those obtained from the present statistical analysis of the sample at hand. An entirely comprehensive analysis, of course, would be possible only with complete returns on all properties for all grades and classes by all manufacturers. Even with such treatment of the problem the same general order of significant properties would no doubt be obtained, and, consequently, would not greatly change the sequence of developing the desired test methods—the basic purpose of the survey.

The rating for properties of specialties (Table XII) was arbitrarily assigned in order to complete the grand ratings of properties. The rating therefore has no particular significance because the various grades included are unrelated in their use requirements.

An average of 29 properties out of a total of 54 were rated when all papers are considered.

The average class figures are put adjacent to the class ratings because occasionally two or more steps in ratings may differ but slightly in average values and again they may differ very significantly.

Detailed inferences and differences of the various grades and classes will not be attempted in this paper but will be left for the reader's individual study. By way of illustration, the relative rating for the various sheet properties of standard news print are as follows:

1. Finish
2. Formation
3. Color
4. Cleanliness
5. Bursting strength
6. Ream weight
7. Tensile strength
8. Opacity
9. Printing ink penetration
10. Thickness

In Table XIII the grand ratings are given for all properties as applied to all classes and grades. The first twenty

TABLE IX.—WRAPPING PAPER CLASS

Grade ratings											Class		
Bogus packing	Soap paper wrapper	Carton wrapper	Manila wrapper	Kraft coating	Waxed wrapper	Sulphite wrapping	Kraft wrapper	Bread wrapper	Butcher's wrapping	Properties	Total	Average	Rating
..	..	..	..	14	..	15	..	..	..	Thickness	128	12.8	33
..	..	..	..	..	..	6	..	..	..	Apparent density	120	12.0	18
2	..	..	..	..	1	..	15	..	..	Bulk	116	11.6	14
..	..	..	..	..	..	..	..	..	13	Footage	125	12.5	31
..	2	..	..	..	8	..	..	..	..	Sheetage	123	12.3	23
1	..	12	6	11	..	10	3	7	6	Ream weight	74	7.4	5
..	..	2	..	3	..	11	16	5	14	Formation	83	8.3	8
..	4	1	4	10	..	8	8	1	4	Color	54	5.4	4
3	3	6	3	6	..	1	9	6	7	Finish	53	5.3	3
..	8	5	..	..	..	..	..	9	15	Gloss	111	11.1	13
..	..	..	..	..	..	..	..	..	..	Two-sidedness	...	....	..
..	..	8	..	..	..	..	..	10	..	Opacity	120	12.0	19
4	..	10	5	9	..	9	10	4	5	Cleanliness	74	7.4	6
..	..	11	..	4	3	5	5	11	16	Tensile strength	78	7.8	7
..	6	3	1	1	4	2	1	3	1	Tearing strength	27	2.7	1
..	5	4	2	5	5	3	2	8	2	Bursting strength	41	4.1	2
..	..	..	..	2	..	4	17	12	9	Folding strength	89	8.9	9
..	..	..	..	..	..	..	..	..	..	Bending strength	...	....	..
..	..	..	..	7	..	..	..	..	..	Elongation at rupture	123	12.3	24
..	..	..	..	13	..	..	14	..	..	Wet strength	124	12.4	29
..	..	..	..	..	..	..	..	..	..	( ) strength	...	....	..
..	..	..	..	..	..	..	..	..	..	Elastic properties	...	....	..
..	..	..	..	..	7	16	13	..	..	Moisture content	122	12.2	21
..	..	..	..	..	..	..	..	..	..	Water absorbency	...	....	..
..	..	..	..	..	2	..	..	..	..	Oil absorbency	124	12.4	27
..	..	7	..	..	..	..	..	..	..	Writing ink absorbency	125	12.5	30
..	..	..	..	..	..	..	..	2	..	Printing ink absorbency	117	11.7	17
..	..	..	..	..	..	..	..	..	10	Blood or fat absorbency	122	12.2	22
..	..	..	..	..	..	..	..	..	11	(Grease) absorbency	123	12.3	25
..	..	..	7	..	..	12	4	..	12	Water penetration	102	10.2	11
..	..	..	..	..	..	..	..	..	..	Turpentine penetration	...	....	..
..	..	..	..	..	..	..	..	..	..	Writing ink penetration	...	....	..
..	..	..	..	..	..	..	..	..	..	Printing ink penetration	...	....	..
..	..	..	..	..	..	..	11	..	..	Water vapor penetration	123	12.3	26
..	..	..	..	..	..	..	..	..	..	( ) vapor penetration	...	....	..
..	..	..	..	..	..	..	..	..	..	Ink wetability	...	....	..
..	..	..	..	..	6	7	..	..	8	Porosity	107	10.7	12
..	..	..	..	..	..	..	12	13	..	Air resistance	121	12.1	20
..	..	..	..	..	..	..	..	..	..	Expansion (temperature)	...	....	..
..	..	..	..	..	..	..	..	..	..	Expansion (moisture)	...	....	..
..	7	..	..	..	..	..	18	..	..	Curl	128	12.8	32
..	..	..	..	..	..	..	..	..	..	Lignin content	...	....	..
..	..	..	..	..	..	..	..	..	..	Alpha cellulose	...	....	..
..	..	..	..	..	..	..	..	..	..	Ash content	...	....	..
..	..	9	8	12	..	14	7	15	3	Sized	91	9.1	10
..	..	..	..	..	..	..	..	..	..	Filled	...	....	..
..	..	..	..	..	..	..	..	..	..	Coated	...	....	..
..	1*	..	..	8	..	..	..	..	..	Permanence (alkali proof)*	116	11.6	15
..	..	..	..	..	..	..	..	..	..	Electrical resistance	...	....	..
..	..	..	..	..	..	..	..	..	..	Heat insulation	...	....	..
..	..	..	..	..	..	..	6	..	17	Odor	116	11.6	16
..	..	..	..	..	..	..	..	..	..	Anti-tarnish	...	....	..
..	..	..	..	..	..	..	..	..	..	Erasure resistance	...	....	..
..	..	..	..	..	..	13	..	14	18	Hardness	124	12.4	28

TABLE XI.—WRITING PAPER CLASS

Grade ratings										Class		
Manifold	Check	Papeterie (low grade)	Papeterie (high grade)	Manila	Ledger	Rag bond	Drawing	Writing	Sulphite bond	Properties	Total	Average	Rating
..	..	.	..	..	14	..	..	..	20	Thickness	143	14.3	23
..	5	..	..	..	..	..	..	11	..	Apparent density	154	15.4	28
..	..	5	5	..	22	20	..	..	17	Bulk	118	11.8	15
..	..	..	..	..	..	..	..	..	..	Footage	..	..	..
..	..	..	..	..	..	..	3	..	..	Sheetage	159	15.9	32
4	4	4	4	11	9	9	..	..	13	Ream weight	82	8.2	7
5	1	3	6	1	4	2	1	3	4	Formation	30	3.0	7
1	..	1	1	..	1	1	..	2	1	Color	32	3.2	3
2	2	2	2	2	2	3	5	1	5	Finish	26	2.6	1
..	..	..	..	..	12	11	..	..	28	Gloss	139	13.9	22
..	..	16	20	..	11	8	..	9	15	Two-sidedness	110	11.0	10
..	..	..	..	7	..	6	..	6	12	Opacity	112	11.2	12
3	..	6	3	3	7	..	2	5	2	Cleanliness	58	5.8	4
..	..	..	19	..	20	14	..	..	29	Tensile strength	149	14.9	26
..	..	10	10	9	6	5	..	8	6	Tearing strength	73	7.3	6
6	..	9	7	8	3	4	..	7	3	Bursting strength	59	5.9	5
..	..	..	16	..	8	7	..	10	7	Folding strength	97	9.7	9
..	..	7	8	..	..	..	..	..	..	Bending strength	138	13.8	20
..	..	..	..	..	..	..	..	..	..	Elongation at rupture	..	..	..
..	..	..	..	..	..	..	..	..	..	Wet strength	..	..	..
..	..	..	..	..	..	..	..	..	..	( ) strength	..	..	..
..	..	..	..	..	..	..	..	..	27	Elastic properties	159	15.9	33
..	..	11	12	..	21	13	..	14	16	Moisture content	118	11.8	16
..	..	..	..	..	..	..	..	..	..	Water absorbency	..	..	..
..	..	..	..	..	..	..	..	..	..	Oil absorbency	..	..	..
..	..	13	15	..	17	12	..	13	14	Writing ink absorbency	115	11.5	14
..	..	..	..	..	18	..	..	15	22	Printing ink absorbency	146	14.6	25
..	..	..	..	..	..	..	..	..	..	Blood or fat absorbency	..	..	..
..	..	..	..	..	..	..	..	..	..	( ) absorbency	..	..	..
..	..	..	..	..	..	..	..	..	..	Water penetration	..	..	..
..	..	..	..	..	..	..	..	..	..	Turpentine penetration	..	..	..
..	3	..	13	5	16	19	4	4	8	Writing ink penetration	97	9.7	8
..	..	..	..	6	..	16	..	12	9	Printing ink penetration	124	12.4	18
..	..	..	..	..	..	..	..	..	..	Water vapor penetration	..	..	..
..	..	..	..	..	..	..	..	..	..	( ) vapor penetration	..	..	..
..	..	..	..	..	..	..	..	..	..	Ink wetability	..	..	..
..	..	..	..	..	..	..	..	..	21	Porosity	153	15.3	27
..	..	..	..	..	..	..	..	17	..	Air resistance	161	16.1	34
..	..	..	..	..	..	..	..	..	..	Expansion (temperature)	..	..	..
..	..	..	..	..	..	..	..	..	24	Expansion (moisture)	156	15.6	30
..	..	12	14	10	19	10	..	16	11	Curl	111	11.1	11
..	..	..	..	..	..	..	..	..	..	Lignin content	..	..	..
..	..	..	..	..	..	..	..	..	..	Alpha cellulose	..	..	..
..	..	17	11	..	..	..	..	..	25	Ash content	146	14.6	24
..	..	8	9	4	15	..	..	..	19	Sized	113	11.3	13
..	..	..	..	..	..	..	..	..	26	Filled	158	15.8	31
..	..	..	..	..	..	..	..	..	..	Coated	..	..	..
..	..	..	..	..	5	17	..	..	10	Permanence	120	12.0	17
..	..	..	..	..	..	..	..	..	..	Electrical resistance	..	..	..
..	..	..	..	..	..	..	..	..	..	Heat insulation	..	..	..
..	..	15	18	..	..	..	..	..	..	Odor	156	15.6	29
..	..	..	..	..	..	..	..	..	..	Anti-tarnish	..	..	..
..	..	..	..	..	10	18	..	..	23	Erasure resistance	139	13.9	21
..	..	14	17	..	13	15	..	..	18	Hardness	126	12.6	19

TABLE XII.—SPECIALTIES CLASS

Grade ratings								Class		
Cigarette	Carpet	Tape (telegraph)	Envelope	Blueprint	Imitation parchment	Folder	Embossing	Properties	Total	Average	Rating
5	..	..	..	..	..	..	..	Thickness	76	9.5	20
3	..	..	22	..	..	..	..	Apparent density	73	9.1	15
..	..	..	..	..	..	..	3	Bulk	76	9.5	19
..	..	..	..	..	..	..	..	Footage	..	..	..
..	..	..	..	..	..	..	..	Sheetage	..	..	..
4	..	..	13	1	7	..	7	Ream weight	54	6.8	8
1	..	..	10	..	..	4	6	Formation	48	6.0	6
..	2	..	4	..	3	5	2	Color	45	5.6	4
..	..	..	2	..	4	1	5	Finish	44	5.5	3
..	..	..	20	..	..	9	8	Gloss	77	9.6	24
..	..	..	14	..	..	8	..	Two-sidedness	73	9.1	16
7	..	..	8	..	..	7	..	Opacity	60	7.5	9
2	..	..	5	..	5	6	4	Cleanliness	41	5.1	1
9	1	2	..	4	..	..	9	Tensile strength	66	8.2	10
..	..	5	3	5	2	3	..	Tearing strength	45	5.6	5
10	..	6	9	2	1	..	..	Bursting strength	52	6.5	7
..	..	3	1	3	..	2	..	Folding strength	44	5.5	2
..	..	..	16	..	..	..	..	Bending strength	77	9.6	25
..	..	1	..	..	..	..	..	Elongation at rupture	76	9.5	18
11	..	..	..	..	..	..	..	Wet strength	82	10.2	30
..	..	..	..	..	..	..	..	( ) strength	..	..	..
..	..	..	15	..	..	..	..	Elastic properties	76	9.5	22
..	..	..	17	..	..	..	..	Moisture content	78	9.8	26
..	..	8	..	..	..	..	..	Water absorbency	83	10.4	32
..	..	..	..	..	..	..	..	Oil absorbency	..	..	..
..	..	7	..	..	..	..	..	Writing ink absorbency	82	10.2	29
..	..	..	..	..	..	..	..	Printing ink absorbency	..	..	..
..	..	..	..	..	..	..	..	Blood or fat absorbency	..	..	..
..	..	..	..	..	..	..	..	( ) absorbency	..	..	..
..	..	..	18	6	6	..	..	Water penetration	76	9.5	21
..	..	..	..	..	..	..	..	Turpentine penetration	..	..	..
..	..	..	6	..	..	..	..	Writing ink penetration	67	8.4	11
..	..	..	7	..	..	..	..	Printing ink penetration	68	8.5	13
..	..	..	..	..	..	..	..	Water vapor penetration	..	..	..
..	..	..	..	..	..	..	..	( ) vapor penetration	..	..	..
..	..	..	..	..	..	..	..	Ink wetability	..	..	..
6	..	..	..	..	..	..	..	Porosity	77	9.6	23
..	..	..	..	..	..	..	..	Air resistance	..	..	..
..	..	..	..	..	..	..	..	Expansion (temperature)	..	..	..
..	..	..	11	..	..	..	..	Expansion (moisture)	72	9.0	14
..	..	4	12	..	..	..	..	Curl	68	8.5	12
..	..	..	..	..	..	..	..	Lignin content	..	..	..
..	..	..	..	..	..	..	..	Alpha cellulose	..	..	..
8	..	..	..	..	..	..	..	Ash content	79	9.9	27
..	..	..	..	..	..	..	1	Sized	74	9.2	17

TABLE XII.—SPECIALTIES CLASS—*Continued*

Grade ratings								Properties	Class		
Cigarette	Carpet	Tape (telegraph)	Envelope	Blueprint	Imitation parchment	Folder	Embossing		Total	Average	Rating
..	..	..	..	..	..	..	..	Filled	..	...	..
..	..	..	..	..	..	..	..	Coated	...	...	...
..	..	..	..	..	..	..	10	Permanence	83	10.4	33
..	..	..	..	..	..	..	..	Electrical resistance	..	...	..
12	..	..	..	..	..	..	..	Heat insulation	...	...	...
..	..	..	..	..	..	..	..	Odor (burning)	83	10.4	34
..	..	..	..	..	..	..	..	Anti-tarnish	..	...	..
..	..	..	19	..	..	..	..	Erasure resistance	80	10.0	28
..	..	..	21	..	..	..	..	Hardness	82	10.2	31

TABLE XIII.—GRAND RATINGS OF SHEET PROPERTIES FOR ALL PAPERS

Class ratings												All papers		
Absorbent (Table 1)	Board (Table 2)	Building (Table 3)	Cardboard (Table 4)	Cover (Table 5)	News (Table 6)	Printing (Table 7)	Tissue (Table 8)	Wrapping (Table 9)	Bags (Table 10)	Writings (Table 11)	Specialties (Table 12)	Properties	Total	Average	Grand rating
15	1	3	2	7	15	20	14	33	..	23	20	Thickness	177	14.8	11
3	12	13	19	..	18	25	..	18	22	28	15	Apparent density	21	18.2	13
17	15	18	10	11	10	15	18	14	9	15	19	Bulk	171	14.2	10
..	17	2	..	..	23	..	..	31	..	..	..	Footage	301	25.1	32
22	11	..	..	..	..	16	12	23	..	32	..	Sheetage	300	25.0	31
9	13	7	4	3	5	5	5	5	4	7	8	Ream weight	86	7.2	4
20	9	9	7	8	2	3	2	8	11	2	6	Formation	87	7.2	5
12	4	19	3	1	1	2	1	4	8	3	4	Color	62	5.2	2
21	2	5	1	4	3	1	4	3	14	1	3	Finish	62	5.2	1
..	..	..	16	..	13	11	7	13	18	22	24	Gloss	235	19.6	20
..	36	22	11	9	17	13	..	..	..	10	16	Two-sidedness	243	20.2	23
..	40	..	17	..	9	4	16	19	..	12	9	Opacity	218	18.2	14
13	3	..	6	12	4	7	8	6	12	4	1	Cleanliness	102	8.5	6
6	19	8	24	17	16	21	3	7	2	26	10	Tensile strength	159	13.2	9
19	6	16	8	10	19	6	19	1	1	6	5	Tearing strength	116	9.7	7
5	10	1	5	5	6	23	6	2	3	5	7	Bursting strength	78	6.5	3
18	8	..	12	2	20	8	..	9	5	9	2	Folding strength	146	12.2	8
..	5	4	15	15	..	30	..	..	..	20	25	Bending strength	255	21.2	24
..	..	..	..	..	29	..	..	24	10	..	18	Elongation at rupture	319	26.6	36
2	41	..	..	..	..	28	23	29	23	..	30	Wet strength	315	26.2	35
..	31	15	..	..	..	..	..	..	..	..	..	(Special) strength	340	28.3	42
..	14	..	14	..	..	33	..	..	..	33	22	Elastic properties	301	25.1	34
..	7	10	18	16	11	19	15	21	13	16	26	Moisture content	196	16.3	12
4	29	20	..	..	..	32	13	..	..	..	32	Water absorbency	301	25.1	33
..	34	6	..	..	..	..	22	27	..	..	..	Oil absorbency	322	26.8	38
14	37	..	9	..	24	..	..	30	..	14	29	Writing ink absorbency	289	24.1	27
23	23	..	13	13	7	10	26	17	..	25	..	Printing ink absorbency	242	20.2	22
..	..	..	..	..	..	..	..	22	..	..	..	Blood or fat absorbency	351	29.2	46
..	..	17	..	..	..	..	..	25	..	..	..	(Special) absorbency	345	28.8	45
10	16	14	20	..	28	22	17	11	16	..	21	Water penetration	228	19.0	17
..	..	..	..	..	27	..	..	..	..	..	..	Turpentine penetration	358	29.8	51
8	30	..	..	..	30	31	..	..	..	8	11	Writing ink penetration	275	22.9	25
..	21	..	21	..	8	5	21	..	..	18	13	Printing ink penetration	233	19.4	18
..	26	..	..	..	..	..	..	26	..	..	..	Water vapor penetration	338	28.2	41
..	..	..	..	..	..	..	..	..	..	..	..	( ) vapor penetration	...	...	...
7	..	..	..	..	14	35	..	..	..	..	..	Ink wetability	326	27.2	39
1	28	11	..	..	12	26	..	12	7	27	23	Porosity	220	18.3	15
..	27	..	..	..	21	24	9	20	..	34	..	Air resistance	290	24.2	28
..	39	..	..	..	..	29	..	..	..	..	..	Expansion (temperature)	351	29.2	47
..	22	..	..	..	..	18	..	..	..	30	14	Expansion (moisture)	297	24.8	30
..	18	12	23	..	31	12	24	32	20	11	12	Curl	237	19.8	21
..	..	..	..	..	26	..	..	..	..	..	..	Lignin content	357	29.8	49
..	..	..	..	..	..	34	25	..	..	..	..	Alpha cellulose	358	29.8	50
11	..	24	..	14	22	9	..	..	..	24	27	Ash content	287	23.9	26
..	20	23	22	..	..	17	10	10	21	13	17	Sized	227	18.9	16
..	..	..	..	..	..	..	..	..	..	31	..	Filled	359	29.9	52
..	..	..	25	..	..	27	..	..	15	..	..	Coated	341	28.4	43
..	33	21	27	..	..	36	20	15	19	17	33	Permanence	295	24.6	29
..	42	..	..	..	..	..	..	..	..	..	..	Electrical resistance	362	30.2	53
..	25	25	..	..	..	..	..	..	..	..	..	Heat insulation	344	28.7	44
..	32	..	..	..	..	..	..	16	17	29	34	Odor	320	26.7	37
..	35	..	..	..	..	..	..	..	..	..	..	Anti-tarnish	355	29.6	48
..	38	..	26	..	..	..	..	..	..	21	28	Hardness	234	19.5	19
16	24	..	..	6	25	14	11	28	6	19	31	Erasure resistance	335	27.9	40

significant properties follow in order of their importance:

1. Finish
2. Color
3. Bursting strength
4. Ream weight
5. Formation
6. Cleanliness
7. Tearing strength
8. Folding strength
9. Tensile strength
10. Bulk
11. Thickness
12. Moisture content
13. Apparent density
14. Opacity
15. Porosity
16. Sizing
17. Water penetration
18. Printing ink penetration
19. Hardness
20. Gloss

Recommendations

These data indicate which standard test methods should be perfected first in order to expedite the establishment of proximate specifications of papers and paperboards according to the third general objective of the program of the Technical Association of the Pulp and Paper Industry.

Specifically, it is here recommended that standard test methods be perfected for the sheet properties in the order shown in the grand ratings for all classes. Test methods for ten of the first twenty properties listed are or could easily be put into tentative standard form. It is after the first 20 properties, in general, that unusual properties to meet special requirements of use enter into a sheet of paper. Therefore, in all probability it will never be necessary to specify more than twenty properties for proximate specifications unless a completely specified sheet is desired for a very special purpose.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JANUARY 6, 1934

WALL PAPER

B. W. Baker & Co., A. Ballin, Hamburg, 5 cs.; F. J. Emmerich, Scythia, Liverpool, 1 ble.; Whiting & Patterson Co., Amer. Merchant, London, 1 ble.

PAPER HANGINGS

W. H. S. Lloyd & Co., Amer. Merchant, London, 1 ble., 1 cs.

NEWS PRINT

Perkins Goodwin & Co., A. Ballin, Hamburg, 402 rolls; Jay Madden Corp., A. Ballin, Bremen, 129 rolls; Jay Madden Corp., Scanyork, Kotka, 247 rolls; Lunham & Reeve, Inc., Scanyork, Kotka, 101 rolls; Star Co., Markland, Liverpool, N. S., 318 rolls; N. Y. Tribune, Inc., Markland, Liverpool, N. S., 1,442 rolls; World Telegram, Markland, Liverpool, N. S., 574 rolls; Ribbon & Ticker Paper Co., Markland, Liverpool, N. S., 13 rolls; B. J. Warren, Markland, Liverpool, N. S., 116 rolls; Clinton Paper Corp., Markland, Liverpool, N. S., 980 rolls.

PRINTING PAPER

Phoenix Shipping Co., A. Ballin, Hamburg, 4 cs.; Ozalid Corp., A. Ballin, Hamburg, 51 cs.

WRAPPING PAPER

E. Dietzgen & Co., Binnendyk, Rotterdam, 19 cs.; Heemsoth Basse & Co., Binnendyk, Rotterdam, 37 bls.; F. C. Strype, Black Gull, Antwerp, 9 cs.

PACKING PAPER

F. C. Strype, A. Ballin, Hamburg, 59 cs.; Gevaert Co. of America, Black Gull, Antwerp, 1 cs.

DECALCOMANIAS

Sellers Transportation Co., A. Ballin, Hamburg, 10 cs.; Sellers Transportation Co., Europa, Bremen, 34 cs., 2 rolls; L. A. Consmiller, Europa, Bremen, 18 cs.

TRANSFER PICTURES

Rohner Gehrig & Co., A. Ballin, Hamburg, 10 cs.; Rohner Gehrig & Co., Europa, Bremen, 27 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Scythia, Liverpool, 5 cs., (simplex).

FILTER MATERIAL

Gerhard & Hey, Binnendyk, Rotterdam, 20 cs.

FILTER PAPER

H. Reeve Angel & Co. Inc., Amer. Merchant, London, 6 cs.

DRAWING PAPER

H. Reeve Angel & Co. Inc., Amer. Merchant, London, 4 cs.

METAL PAPER

K. Pauli Co., A. Ballin, Hamburg, 5 cs.; Globe Shipping Co., A. Ballin, Hamburg, 44 cs.

SURFACE COATED PAPER

Globe Shipping Co., A. Ballin, Hamburg, 77 cs.; Gevaert Co. of America, Black Gull, Antwerp, 33 cs.

BASIC PAPER

C. Bruening Co., Binnendyk, Rotterdam, 8 rolls.

PHOTO PAPER

American Express Co., A. Ballin, Hamburg, 47 cs.; C. Happel, A. Ballin, Bremen, 2 cs.

TISSUE PAPER

Drytype Stencil Co., Kurama Maru, Kobe, 6 cs.; Jay Madden Corp., Scanyork, Helsingfors, 29 bls.

PARCHMENT PAPER

——, A. Ballin, Bremen, 10 cs.

TOILET PAPER

Walker Goulard Plehn Co., Pr. Johnson, Alexandria, 200 pkgs.

STENCIL PAPER

Frankel Carbon & Ribbon Manfg. Co., Amer. Merchant, London, 1 cs.

IVORY BOARDS

R. Wilson Paper Corp, Binnendyk, Rotterdam, 57 cs., 96 rolls; Safran & Glucksman, Inc., Binnendyk, Rotterdam, 13 cs.

MISCELLANEOUS PAPER

T. N. Fairbanks, Kinai Maru, Yokohama, 2 cs.; A. Brown & Bro., A. Ballin, Hamburg, 9 cs.; Keuffel & Esser Co., A. Ballin, Hamburg, 10 cs., 40 rolls; F. C. Strype, Chr. Sass, Marseilles, 6 cs.; E. Dietzgen & Co., Chr. Sass, Marseilles, 3 cs.; ——, Chr. Sass, Marseilles, 2 cs.; Japan Paper Co., Pr. Taft, Kobe, 31 cs.; Corn Exchange Bank Trust Co., Venice Maru, Kobe, 29 cs.

RAGS, BAGGINGS, ETC.

1st Natl. Bank of Boston, Kinai Maru, Osaka, 135 bls. rags; ——, Motomar, Leghorn, 50 bls. rags; E. J. Keller Co., Inc., Waukegan, ——, 45 bls. flax waste; Castle & Overton, Inc., Waukegan, Dunkirk, 99 bls. stockings; Chase National Bank, Amer. Merchant, London, 52 bls. rags; E. J. Keller Co. Inc., Black Gull, ——, 610 bls. flax

waste; E. J. Keller Co., Inc., Black Gull, ——, 610 bls. flax waste; E. J. Keller Co., Inc., Black Gull, ——, 100 bls. bagging; W. Steck & Co., Black Gull, Antwerp, 100 bls. flax waste; Chase National Bank, A. Ballin, Bremen, 63 bls. rags; E. J. Keller Co. Inc., Exeter, ——, 87 bls. rags.

BONE GLUE

——, A. Ballin, Hamburg, 110 bags.

OLD ROPE

Irving Trust Co., Binnendyk, Rotterdam, 51 bls.; Banco Coml. Italiane Trust Co., Amer. Merchant, London, 74 coils.

WOOD PULP

Castle & Overton, Inc., A. Ballin, Hamburg, 140 bls. wood pulp, 28 tons; E. J. Keller Co. Inc., A. Ballin, ——, 327 bls. wood pulp, 50 tons; ——, A. Ballin, Bremen, 150 bls. wood pulp; Castle & Overton, Inc., Scanyork, Wiborg, 782 bls. wood pulp, 156 tons; J. Andersen & Co., Ivar, Sarpsborg, 600 bls. sulphite, 101 tons; Bulkley Dunton & Co., Hallaren, ——, 750 bls. wood pulp.

WOOD PULP BOARDS

Johaneson Wales & Sparre, Inc., Scanyork, Wiborg, 106 rolls, 24 tons.

ALBANY IMPORTS

WEEK ENDING JANUARY 6, 1934

Atterbury Bros. Inc., Ivar, Tofte, 6,000 bls. sulphite, 1,016 tons; Atterbury Bros. Inc., Ivar, Drammen, 750 bls. chemical, 152 tons; Perkins Goodwin & Co., Ivar, Drammen, 125 bls. sulphite, 25 tons; E. M. Sergeant & Co., Ivar, Oslo, 1,620 bls. chemical, 274 tons; Halifax Power & Pulp Co., Dagali, Sheet Harbor, 8,506 bls. ground pulp, 1,908 tons.

PORTLAND IMPORTS

WEEK ENDING JANUARY 6, 1934

The Borregaard Co. Inc., Ivar, Hurum, 1,800 bls. sulphate, 304 tons; Atterbury Bros. Inc., Ivar, Drammen, 1,125 bls. chemical, 228 tons; Gottesman & Co., Inc., Ottowa, Sweden, 5,400 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING JANUARY 6, 1934

Philadelphia National Bank, Kinai Maru, Shanghai, 50 bls. card waste; Castle & Overton, Inc., Black Gull, Antwerp, 50 bls. rags; Union Waste Co., Black Gull, Antwerp, 24 bls. rags; E. J. Keller Co. Inc., Black Gull, ——, 32 bls. rags.

NORFOLK IMPORTS

WEEK ENDING JANUARY 6, 1934

Darmstadt Scott & Courtney, Waukegan, Dunkirk, 45 bls. bagging; Chase National Bank, Venice Maru, Kobe, 700 bls. bagging.

U. S. PRINTING OFFICE CHANGES

(Continued from page 13)

Paragraph No. 92, "Convict Labor", has been renumbered.

Specifications Revised

In the schedule the specifications have been revised as follows: "Folding Endurance" requirements on sulphite writing and on certain manifold papers have been decreased since they have been found unnecessarily high. "Watermark" requirements have been modified to insure uniformity in the direction of the design in the sheet. In order to meet the requirements of the Government Printing Office, additional sizes and weights have been added and some omitted.

In Lot No. 10, "Machine-finish Book Paper, 80 pounds", a note has been inserted requiring that this particular lot shall be suitable for writing on with ink, as it is used in printing application blanks for domestic money orders.

In Lot No. 109, "25 Percent Rag Bond Paper, No. 32", the ash limitation has been removed and a minimum opacity requirement has been included in the descriptive text of this lot with a view of obtaining paper more suitable for printing patent specifications.

In Lots Nos. 366, 367, and 368, "Binders Board", the words "exclusive of trim" have been added to the specifications in order to insure deliveries of uniform 50-pound bundles, basis weight.

This schedule embraces 184 lots, being the same number called for in the schedule for 1933-34. The quantity that it is estimated will be required for the three months, beginning April 1, 1934, is 12,780,000 pounds, as compared with 42,000,000 pounds for the previous contract term of 1 year.

The approximate estimated quantities set forth in detail in the Schedule comprise:

1,000,000 pounds news print paper.
2,385,000 pounds machine-finish book paper.
40,000 pounds antique book paper.
72,000 pounds light-weight machine-finish book paper.
125,000 pounds 50% rag machine-finish book paper.
20,000 pounds 75% rag laid antique book paper.
20,000 pounds 100% rag machine finish book paper.
730,000 pounds supercalendered book paper.
15,000 pounds halftone book paper.
85,000 pounds coated book paper.
15,000 pounds lithograph paper.
700,000 pounds mimeograph paper.
170,000 pounds U S M O safety writing paper.
6,000 pounds U S M O writing paper.
3,000 pounds safety writing paper.
1,374,500 pounds writing paper.
165,000 pounds map paper.
259,000 pounds manifold paper.
1,524,000 pounds bond paper.
265,000 pounds ledger paper.
219,000 pounds index paper.
1,500 pounds tissue paper.
83,000 pounds cover paper.
135,000 pounds manila paper.
243,000 pounds kraft paper.
45,000 pounds manila tag board.
330,000 pounds calendered tag board.
15,000 pounds manila cardboard.
40,000 sheets railroad board.
185,000 pounds bristol board.
2,000,000 pounds U. S. Postal Card bristol board.
1,000 pounds paraffin paper.
50,000 sheets gummed paper.
48,000 pounds blotting paper.
2,000 pounds stereotype molding paper.
10,000 pounds oiled manila tympan paper.
1,000 pounds plate-wiping paper.
2,000 pounds back-lining paper, for case making.
5,000 pounds high finish red sulphite.
10,000 sheets pressboard.
1,000 pounds news board.
195,000 pounds chip and straw board.
10,000 pounds marble grained board.
10,000 pounds box board.
232,000 pounds binders board.

In cases where more than 1,000 reams are called for, proposals will be received for 1,000 reams or more.

The following envelopes:

10,180,000 Kraft.
6,115,000 Writing, Sulphite, White and Colored.
175,000 Fine Writing, White and Colored.
210,000 Ledger, White.
615,000 Bond, 50% Rag, White.
142,000 Bond, 100% Rag, White.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, January 10, 1934.

Conditions in the local paper market are practically unchanged, but now that the Yuletide holidays and the inventory period are out of the way, trading should become more lively. Sales forces of the leading paper organizations are beginning the year in an optimistic frame of mind.

The sentiment in the news print paper market is more encouraging than for some time past. Manufacturing operations in the United States and Canada are being maintained in sufficient volume to take care of current requirements. Stocks at the mills are below normal. The price situation is gradually improving.

Paper board production is picking up after the usual seasonal lull. Demand for box board is fairly persistent. Prices are steady and unchanged. The fine paper market is rather quiet. Tissues are moving in moderate volume. The coarse paper market is fairly active for the time of year, with quotations holding up well.

Mechanical Pulp

The ground wood pulp market continues to mark time. Production, both at home and abroad, is practically keyed to consumption and the statistical position of the industry is sound. Quotations are generally holding to previously quoted levels, and reports of concessions are infrequent.

Chemical Pulp

Steadiness continues to prevail in the chemical pulp market, although demand is restricted at present for practically all of the various foreign and domestic grades. The contract movement is normal for the time of year. Bleached sulphite is still quoted at from $2.75 to $2.85 per 100 pounds, on dock, Atlantic, Gulf, and West Coast ports.

Old Rope and Bagging

Some improvement transpired in the old rope market. Demand for domestic and foreign old manila rope is more persistent. Small mixed rope is moving slowly. Old rope prices are firmer. The bagging market is fairly active. Scrap and gunny bagging are in better request. Roofing bagging is slightly firmer.

Rags

The domestic rag market is beginning to attract greater interest from the paper mills. Demand for new cotton rags is improving. No. 1 white shirt cuttings are particularly strong. Roofing grades are in good request, at firmer prices. The imported rag market is still affected by the foreign exchange situation.

Waste Paper

Trading in the paper stock market is quite active for the season. Offerings of the lower grades are scarce and quotations are decidedly firmer, especially on strictly folded news and No. 1 mixed paper. The higher grades of waste paper are steady. Prices on book stock have advanced slightly, while hard and soft white shavings are firmer.

Twine

The twine market is only moderately active. The outlook for the future is promising, however, and a revival in brisk trading is anticipated in the near future, with the end of the stock taking period. Prices of the various grades are steady to firm, in most instances.

H. C. Avery Joins Latex Fiber Industries

Latex Fiber Industries, Incorporated, of Beaver Falls, N. Y., announce the appointment of Henry C. Avery, lately a vice-president of the Flintkote Corporation, as sales manager with offices in the United States Rubber Company Building, 1790 Broadway, New York City.

Lexide and other kindred products of Latex Fiber Industries, Incorporated, are widely used in the shoe industry by the artificial leather trade, by book binders and automotive manufacturers.

The Latex content of Lexide imparts the peculiar properties required for graining and embossing, in a perfect imitation of all grades of leather. Belts, loose leaf binders, book covers, brief cases, bags and many other useful and beautiful articles are manufactured from Lexide, many of which commonly pass for real leather.

No less than twenty-two different Lexide parts are used on one 1934 model by General Motors, as for interior body trim, rim strips, gaskets, etc., and in like manner on a number of other cars.

The increased demand for Lexide has made it necessary to enlarge the manufacturing facilities at Beaver Falls and a large addition has been recently completed, adding a total of 16,000 square feet of manufacturing space to the previous plant. Equipment is being installed in this space for the manufacturing of several new types and varieties of Lexide.

In order to further facilitate the servicing of Lexide, the personnel of the sales department has been increased and moved to New York.

A. D. Tayloe Purchases Tulsa Division

A. D. Tayloe, secretary and treasurer of the Tayloe Paper Company, Memphis, Tenn., has purchased the Tulsa Division of the Tayloe Paper Company and after January 1 will not be connected with the Memphis organization in an executive capacity.

A part of his holdings will remain in the Memphis organization and in its building interests.

Although the Tulsa Division will be separately incorporated, the Memphis, Fort Worth and Tulsa houses will continue to co-operate in their buying and other policies.

The Tulsa house will continue under the management of W. P. Beene. Mr. Tayloe will supervise the buying from Memphis and requests that mill representatives get in touch with him when visiting Memphis.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, January 10, 1934.

BLANC FIXE.—The blanc fixe market is moderately active. Prices are holding to formerly quoted levels. The pulp is selling at from $42.50 to $45.00 per ton, in bulk; while the powder is quoted at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Steadiness prevails in the bleaching powder market. Shipments against contract are moving regularly. Prices are generally holding to schedule. Bleaching powder is quoted at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market is rather quiet. Domestic standard ground is quoted at 11¾ cents and finely ground at 12 cents per pound. Argentine standard ground is selling at 13½ cents and finely ground at 16 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda is fairly persistent. The contract movement is well up to average. Solid caustic soda is quoted at from $2.60 to $3.10; while the flake and ground are selling at from $3.00 to $3.05 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is firmer. Contract shipments are moving into consumption at a steady pace. Imported china clay is quoted at from $13.50 to $21.00 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Some improvement was noticed in the chlorine market. The contract movement is fairly heavy. Prices are holding to schedule. Chlorine is still quoted at from $2.00 to $2.25 per 100 pounds; in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is exhibiting a strong undertone. Grades of gum rosin used in the mills are quoted at from $4.90 to $5.15 per 280 pounds, in barrels, at works; while wood rosin is selling at $3.90 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—No radical changes were reported in the salt cake market. Prices continue firm. Salt cake is quoted at from $12 to $14 and chrome salt cake at from $12 to $12.50 per ton, at works; while foreign salt cake is selling at from $12 to $12.50 per ton, on dock.

SODA ASH.—The soda ash market is displaying strength. Shipments against contract are moving in good volume. Prices remain unaltered. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.10; in bags, $1.40; and in barrels, $1.50.

STARCH.—Trading in the starch market continues light. The contract movement is seasonal. Prices are holding to formerly quoted levels. Special paper making starch is quoted at $2.67 per 100 pounds, in bags; and at $2.95 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market is fairly active. Contracts for 1934 are being booked in good volume. Commercial grades are quoted at from $1.35 to $1.50; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and nearby car loads, the quotation is $21 per ton.

TALC.—Conditions in the talc market are fairly satisfactory. Prices are holding to schedule, with difficulty. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at eastern mines; while imported talc is selling at from $23 to $30 per ton, on dock.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	—
Bonds	6.00	@	—
Index	6.00	@	—
Writings—			
Extra Superfine	6.50	@	—
Superfine	6.25	@	—
Tub sized	5.75	@	—
Engine sized	5.50	@	—
Book Cased—			
S. & S. C.	5.35	@	5.75
S. & S. C. Litho.	5.60	@	6.00
M. F.	5.10	@	5.50
Coated and Enamel	5.90	@	6.55
Coated Litho	5.90	@	6.55
Tissues—Per Ream—			
White No. 1	.60	@	.80
White No. 2	.55	@	.70
Anti Tarnish M. G. only	.75	@	.80
Colored	.80	@	1.00
Kraft	.75	@	.80
Manila	.65	@	.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.11	@	—
No. 2	.10	@	—
Bleached, basis 20 lbs.	.13	@	—
(Delivered New York)			
News, per ton—			
Roll, contract	40.00	@	—
Rolls, spot	40.00	@	—
Sheets	45.00	@	—
Side Runs	25.00	@	—
Kraft—			
No. 1 Domestic	4.75	@	5.00
No. 2 Domestic	3.87½	@	—
Southern	3.87½	@	—
Boards—per ton—			
News	45.00	@	50.00
Chip	42.50	@	47.50
Sgl. Mla. Ll. Chip	52.50	@	55.00
Jute Lined Chip	52.50	@	55.00
White Patent Coated	60.00	@	65.00
Binders Boards	68.00	@	72.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	27.50	@	29.00
Dry	30.00	@	31.00
(F.o.b. Mill)			
No. 1 Domestic and Canadian	22.00	@	28.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.85	@	—*
Division 2	2.80	@	—*
Division 3	2.75	@	—*
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.25	@	—*
Other Than Easy Bleaching—			
Class 2. Higher Than Standard	2.20	@	—*
Class 3. Standard	2.15	@	—*
Class 4. Lower than Standard	2.10	@	—
(On Dock, Atlantic Ports)			
Kraft No. 1	1.75	@	1.90
Kraft No. 2	1.60	@	1.70
(F.o.b. Pulp Mill)			
Kraft Domestic (Delivered)	1.60	@	2.75
Soda Bleached	2.50	@	—

* Add 5 Cents for Albany and 15 Cents for Lake Ports.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.50	@	7.00
Silesias No. 1	4.25	@	4.50
New Unbleached	6.75	@	7.25
New Soft Blacks	3.00	@	3.25
Blue Overall	4.00	@	4.25
Fancy	2.50	@	2.75
Washables	1.75	@	2.00
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	3.75	@	4.00
Men's Corduroy	1.50	@	1.75
New Mixed Blacks	2.50	@	2.75

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	@	3.25
White, No. 2—			
Repacked	1.75	@	2.25
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.25	@	1.50
Black Stockings	2.50	@	3.00
Roofing Rags—			
No. 1	.80	@	.90
No. 2	.60	@	.70
No. 3	.50	@	.60
No. 4	.45	@	.50
No. 5A	.40	@	.45

Foreign Rags

New Rags

New Dark Cuttings	1.50	@	1.60
New Mixed Cuttings	1.60	@	1.70
New Light Silesias	3.75	@	4.00
Light Flannelettes	3.75	@	4.00
Unbleached Cuttings	6.25	@	6.50
New White Cuttings	5.75	@	6.25
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	3.75	@	4.00
No. 2 White Cotton	3.00	@	3.25
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.60	@	1.75
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	1.65	@	1.80
French Blue Linens	2.10	@	2.25
German Blue Linens	1.85	@	2.00
German Blue Cottons	1.50	@	1.60
Checks and Blues	1.30	@	1.40
Lindsay Garments	1.35	@	1.50
Dark Cottons	1.15	@	1.30
Old Shopperies	1.00	@	1.10
New Shopperies	.90	@	1.00
French Blues	1.50	@	1.65

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.40	@	1.50
Domestic	1.30	@	1.40
Wool Tares, light	1.10	@	1.20
Wool Tares, heavy	1.10	@	1.20
Bright Bagging	1.05	@	1.15
Manila Rope			
Foreign	2.40	@	2.50
Domestic	2.50	@	2.65
Small Mixed Rope	1.10	@	1.35
New Burlap Cut	1.50	@	1.75
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.55	@	2.65
Ordinary Hard White No. 1	2.30	@	2.40
Hard White No. 2	2.00	@	2.10
Soft White No. 1	1.85	@	1.95
Flat Stock—			
Stitchless	.85	@	.95
Overissue Mag	.85	@	.95
Solid Flat Book	.70	@	.80
Crumpled No. 1	.55	@	.65
Solid Book Ledger	1.50	@	1.65
Ledger Stock	.95	@	1.05
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.60	@	1.70
New Cuttings	1.15	@	1.25
Extra No. 1 old	.75	@	.85
Print	Nominal		
Bogus Wrapper	.40	@	.50
Container	Nominal		
Old Kraft Machine—			
Compressed bales	1.10	@	1.20
News—			
No. 1 White News	1.25	@	1.30
Strictly Overissue	.55	@	.60
Strictly Folded	.40	@	.45
No. 1 Mixed Paper	.25	@	.30

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Want and For Sale Advertisements, 52-53

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